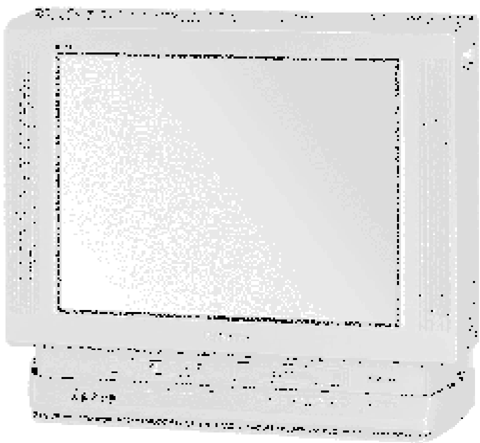
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B6

Service Manual

TV/DVD/VCR Combination

PV-DF2702 / PV-DF2702-K



SPECIFICATIONS

ITEM		SPECIFICATION
VCR	Video	Head: 4 rotary heads helical scanning system
		Input Level: VIDEO IN Jack (Phono type) 1.0 Vp-p 75 Ω unbalanced Output Level: VIDEO OUT Jack (Phono type) 1.0 Vp-p 75 Ω unbalanced Signal-to-Noise Ratio: SP: more than 43 dB LP/SLP: more than 41 dB Horizontal Resolution: Color/Monochrome: more: SP: 230 lines LP/SLP: 220 lines
	Audio	Head: Normal Mono: 1 stationary head Hi-Fi Stereo: 2 rotary heads
		Input Level: AUDIO IN Jack (Phono type) -10 dBv 50 kΩ unbalanced Output Level: AUDIO OUT Jack (Phono type) -8 dBv 1 kΩ unbalanced
		Frequency Response: Normal Mono: SP: 100 Hz-8 kHz LP: 100 Hz-6 kHz SLP: 100 Hz-5 kHz Hi-Fi Stereo: SP/LP/SLP: 20 Hz-20 kHz
		Signal-to-Noise Ratio: Normal Mono: SP: more than 42 dB LP/SLP: more than 40 dB Hi-Fi Stereo: SP/LP/SLP: more than 60 dB
		Wow and Flutter: Normal Mono: SP: Less than 0.2 % WRMS LP: Less than 0.3 % WRMS SLP: Less than 0.4 % WRMS Hi-Fi Stereo: Less than 0.015 % WRMS
	Tuner	Broadcast Channels: VHF 2~13, UHF 14~69 CABLE Channels: Midband A through I (14~22) Superband J through W (23~36) Hyperband AA~EEE (37~64) Lowband A-5~A-1 (95~99) Special CABLE channel 5A (01) Ultraband 65~94, 100~125
	Tape Speed	SP: 1-5/16 i.p.s (33.35 mm/s), LP: 21/32 i.p.s (16.67 mm/s), SLP: 7/16 i.p.s (11.12 mm/s) Record/Playback Time: 8 hr. with 160 min. type tape used in SLP mode FF/REW Time: Less than 2-1/2 min. (120 min. type tape) *Note: FF/REW Time may be exceed specification according to tape condition.

ITEM		SPECIFICATION
VCR	Tape Format	Tape width 12.7 mm (1/2 inch) high density tape
FM RADIO	Band Range	87.5 MHz-108.1 MHz
DVD	Discs Played	(1) DVD-VIDEO disc: 12 cm (5 inch) single-sided, single-layer 12 cm (5 inch) single-sided, double-layer 12 cm (5 inch) double-sided, double-layer (one layer per side) 8 cm (3 inch) single-sided, single-layer 8 cm (3 inch) single-sided, double-layer 8 cm (3 inch) double-sided, double-layer (one layer per side) (2) Compact disc(CD-DA, VIDEO CD): 12 cm (5 inch) disc, 8 cm (3 inch) disc
	Digital Audio Output	Optical connector
	Pickup	Wave length: 655 nm (DVD), 790 nm (Video CD/CD) Laser power: CLASS II
DISPLAY	Picture Tube	27 inch diagonal pure flat Picture Tube
GENERAL	Power	Source: 120 V AC±12 V AC, 60 Hz±3 Hz
		Consumption: Approx. 174 W (Power on), Approx. 3.5 W (Power off)
	Television System	EIA Standard (525 lines, 60 fields) NTSC Color Signal
	Operating Condition	5 ˚C-35 ˚C (41 ˚F-95 ˚F) (Temperature) 10 %-75 % (Humidity)
	Dimension (W x H x D)	760 mm x 651 mm x 503 mm (29-7/8 inch x 25-5/8 inch x 29-7/8 inch)
	Weight	52.0 kg (114.4 lbs.)

Weight and dimensions shown are approximate.
Designs and specifications are subject to change without notice.

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

Panasonic®

1. SAFETY PRECAUTIONS

1.1. GENERAL GUIDELINES

1. **IMPORTANT SAFETY NOTICE**
   There are special components used in this equipment which are important for safety. These parts are marked by ⚠ in the Schematic Diagrams, Circuit Board Layout, Exploded Views and Replacement Parts List. It is essential thatthese critical parts should be replaced with manufacturer's specified parts to prevent X-RADIATION, shock, fire, or other hazards. Do not modify the original design without permission of manufacturer.
2. **An Isolation Transformer should always be used during the**

servicing of Combination DVD VCR whose chassis is not isolated from the AC power line. Use a transformer of adequate power rating as this protects the technician from accidents resultingin personal injury from electrical shocks. It will also protect Combination DVD VCR from being damaged by accidental shorting that may occur during servicing.

3. **When servicing, observe the original lead dress, especially the lead dress in the high voltage circuits. If a short circuit is found, replace all parts which have been overheated or damaged by the short circuit.**
4. **After servicing, see to it that all the protective devices such as insulation barriers, insulation papers, shield, and isolation R-C combinations are properly installed.**
5. **Before turning the receiver on, measure the resistance between B + line and chassis ground. Connect (-) side of an ohmmeter to the B+ lines, and (+) side to chassis ground. Each line should have more resistance than specified,as follows :**

B+ Line
Minimum Resistance

130 V
1 kΩ (Cold chassis ground)

27 V
180 Ω (Cold chassis ground)

17 V
110 Ω (Cold chassis ground)

6. **When the TV set is not used for a long period of time, unplug the power cord from the AC outlet.**
7. **Potentials, as high as 34.5 kV are present when this TV set is in operation. Operation of the TV set without the rear cover involves the danger of a shock hazard from the TV set power supply. Servicing should not be attempted by anyone who isnot thoroughly familiar with the precautions necessary when working on high voltage equipment. Always discharge the anode of the picture tube to the CRT ground of receiver before handling the**

tube.

8. After servicing make the following leakage current checks to prevent the customer from being exposed to shock hazards.

1.2. LEAKAGE CURRENT COLD CHECK

1. Unplug the AC cord and connect a jumper between the two prongs on the plug.

2. For physically operated power switches, turn power on. Otherwise skip step 2.

3. Measure the resistance value, with an ohmmeter, between the jumpered AC plug and each exposed metallic cabinet part on the receiver, such as screwheads, connectors, etc. When the exposed metallic part has a return path to the chassis, the readingshould be between 1 MΩ and 12 MΩ. When the exposed metal does not have a return path to the chassis, the reading must be infinity.

1.3. LEAKAGE CURRENT HOT CHECK

1. Plug the AC cord directly into the AC outlet. Do not use a isolation transformer for this check.

2. Connect a 1.5 kΩ, 10 W resistor, in parallel with a 0.15 µF capacitor, between each exposed metallic part on the set and a good earth ground, as shown in Figure 1.

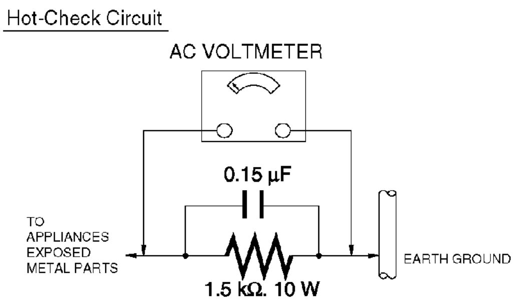
3. Use an AC voltmeter, with 1 kΩ/V or more sensitivity, to measure the potential across the resistor.

4. Check each exposed metallic part, and measure the voltage at each point.

5. Reverse the AC plug in the AC outlet and repeat each of the above measurements.

6. The potential at any point should not exceed 0.75 V RMS. A leakage current tester (Simpson Model 229 equivalent) may be used to make the hot checks. Leakage current must not exceed 1/2 mA. In case a measurement is outside of the limits specified, there is a possibility of shock hazard, and thereceiver should be repaired and rechecked before it is returned to the customer.

Figure 1



2. X-RADIATION

WARNING :

1. **The potential source of X-Radiation in TV sets is the High Voltage section and the picture tube.**
2. **When using a picture tube test fixture for service, ensure that the fixture is capable of handling 34.5 kV without causing X-Radiation.**

NOTE:

It is important to use an accurate periodically calibrated high voltage meter.

1. **Reduce the brightness to minimum.**
2. **Set the SERVICE switch to SERVICE .**
3. **Measure the High Voltage. The meter reading should indicate 32.0 kV±2.5 kV.**
   If the meter indication is out of tolerance, immediate service and correction is required to prevent the possibility of premature component failure.
4. **To prevent an X-Radiation possibly, it is essential to use the specified picture tube.**

2.1. HORIZONTAL OSCILLATOR DISABLE CIRCUIT TEST

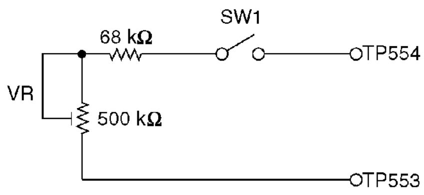
SERVICE WARNING :

The test must be made as a final check before set is returned to the customer.

CONFIRMATION OF X-RAY MOVEMENT

1. **Turn off TV set.**
2. **Connect the circuit below between TP553 and TP554 on the TV Main C.B.A.**

Figure 2



3. Turn on SW1 and then turn on the set. Confirm that the picture is on the screen properly.
4. Confirm that the picture goes out of horizontal sync while getting down by varying VR.
5. If this does not occur, it means that X-ray protect circuit is not operating. Further confirmation and repair is required.

2.2. REPAIR PROCEDURES OF HORIZONTAL OSCILLATOR DISABLE CIRCUIT

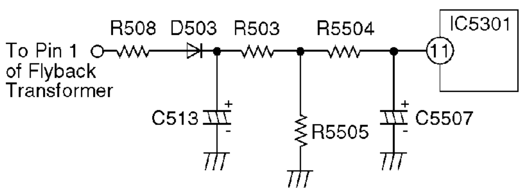
1. Connect a DC voltmeter between capacitor C513 (+) on the Main circuit board and chassis ground.
2. If approximately +21.5 V is not present at that point when 120 V AC is applied, find the cause. Check R503, R5505, C5507, C513 and D503.
3. Carefully check above specified parts and related circuits and parts. When the circuit is repaired, try the horizontal oscillator disable circuit test again.

2.3. CIRCUIT EXPLANATION

2.3.1. HORIZONTAL OSCILLATOR DISABLE CIRCUIT

The positive DC voltage, supplied from the D503 cathode for monitoring high voltage, is applied to the IC5301 Pin11 through R503 and R5504. Under normal conditions, the voltage at IC5301 Pin 11 is less than approx. 3 V. If the high voltage at FlybackTransformer Pin 1 exceeds the specified voltage, the positive DC voltage which is supplied from the D503 cathode also increases. The increased voltage is applied to IC5301 Pin11 through R503 and R5504. Due to the increased voltage at IC5301 Pin11,the horizontal oscillator frequency increases, the picture goes out of horizontal sync, the beam current decreases and the picture become dark in order to keep X-radiation under specification.

Figure 3



2.4. LASER PRODUCT

CLASS I LASER PRODUCT

- **This equipment is certified to comply with DHHS Rules 21 CFR Chapter 1, Subchapter J in effect as of date of manufacture. (Only for U.S.A.)**

This equipment is classified as a Class I (Class 1) level LASER Product and there is no hazardous LASER radiation with the safety protection.

Caution:

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

Never touch the internal parts in order to avoid EXPOSURE TO VISIBLE LASER RADIATION.
Unplug the AC power cord to the equipment when opening the top cover.
When the power switch is On, do not place your eyes close to the front panel opening door or the other openings to look into the interior unit.
LASER Specification
Class I level A LASER Product (Class 1 level A LASER Product)

Wave Length:

647 - 677 nm (at DVD)
775 - 815 nm (at CD)

Laser Power:

No hazardous radiation is emitted with the safety protection.

2.5. PRECAUTION OF LASER DIODE

CAUTION:

This unit utilizes a class III a laser. Visible laser radiation is emitted from the optical pickup lens when the unit is turned on:

1. **Do not look directly into the pickup lens.**
2. **Do not use optical instruments to look at the pickup lens.**
3. **Do not adjust the preset variable resistor on the optical pickup.**
4. **Do not disassemble the optical pickup unit.**
5. **If the optical pickup is replaced, use the manufactures specified replacement pickup only.**
6. **Use of control or adjustment or performance of procedures other than those specified herein may result in hazardous radiation exposure.**

3. PREVENTION OF ELECTROSTATIC DISCHARGE (ESD) TO ELECTROSTATICALLY SENSITIVE (ES) DEVICES

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field-effect transistorsare semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by electrostatic discharge (ESD).

1. **Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any ESD on your body touching a known earth ground. Alternatively, obtain and wear a commercially available discharging ESD wrist strap, whichshould be removed for potential shock reasons prior to applying power to the unit under test.**
2. **After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.**
3. **Use only a grounded-tip soldering iron to solder or unsolder ES devices.**
4. **Use only an anti-static solder removal device. Some solder removal devices not classified as "anti-static (ESD protected)" can generate electrical charge sufficient to damage ES devices.**
5. **Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.**
6. **Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparableconductive material).**
7. **Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.**

   CAUTION:

Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.

8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity (ESD)sufficient to damage an ES device).

"NOTE to CATV system installer :

This reminder is provided to call the CATV system installer's attention to Article 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding systemof the building, as close to the point of cable entry as practical."

4. OPERATION GUIDE

5. SERVICE NOTES (PLEASE READ)

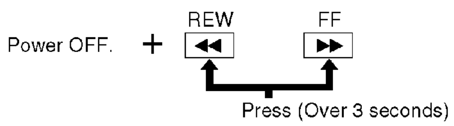
5.1. SERVICE NOTES

5.1.1. SIMPLIFIED FAULT FINDING DATA

Simplified Self-Diagnostic System facilitates finding the cause of the fault. A 4 digit fault code and communication for I2C bus code will be displayed on TV screen.
The Simplified Fault finding data is stored in the Memory IC (IC6004). This data is cleared after it is displayed, and then the POWER button is pressed back on.

1. With power turned off, press FF and REW buttons on unit together for over 3 seconds.

Fig. 1-1



2. TV power comes on and the unit goes into service mode.
   4 digit for fault code and communication for I2C bus code will be displayed.

Fig. 1-2

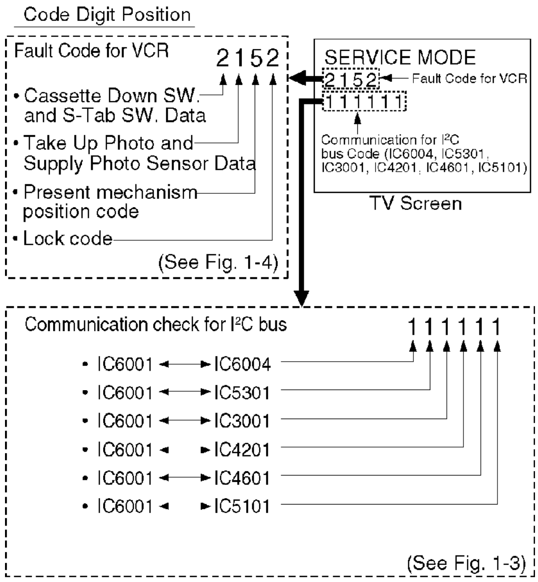


Fig. 1-3

(Communication check for I²C bus)

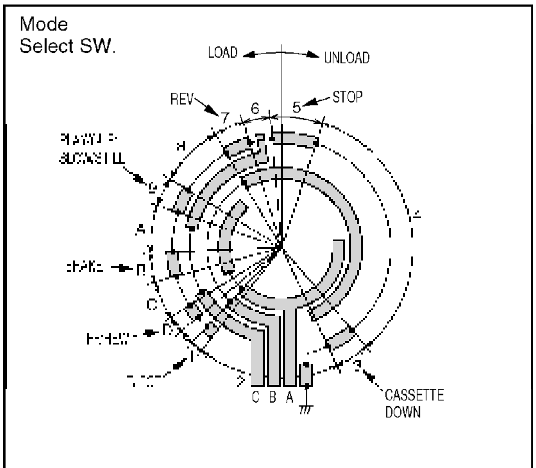
Explanation of Codes	Code No.					
Communication check for I²C bus (IC6001↔IC6004) ----- **NG** **OK**	0 1					
Communication check for I²C bus (IC6001↔IC5301) ----- **NG** **OK**		0 1				
Communication check for I²C bus (IC6001↔IC3001) ----- **NG** **OK**			0 1			
Communication check for I²C bus (IC6001↔IC4201) ----- **NG** **OK**				0 1		
Communication check for I²C bus (IC6001↔IC4601) ----- **NG** **OK**					0 1	
Communication check for I²C bus (IC6001↔IC5101) ----- **NG** **OK**						0 1

Fig. 1-4

(Fault Code for VCR)

Explanation of Codes	Code No.			
S-Tab SW. Data • S-Tab SW. is off. • S-Tab SW. is on.	1 2			
Take Up and Supply Photo Sensor Data • No light detected at either sensor. • Take Up Photo Sensor detected at beginning of tape. • Supply Photo Sensor detected at end of tape. • Light detected at both sensors.		1 2 3 4		
Present Mechanism Position Code Mechanism Position is indicated. (Refer to Fig. 1-5.)			1 2 3 4 5 6 7 8 9 A B C D	
Lock Code (See Note) • VCR is not in shut-off condition. • Reel lock. • Cylinder lock. • Exceeds loading/unloading time. (Mechanism Lock) • Exceeds Cassette loading/unloading time. (Cassette Lock) Tape Unloading (direction) Tape Loading (direction)			 1 2	0 1 2 3 4 4

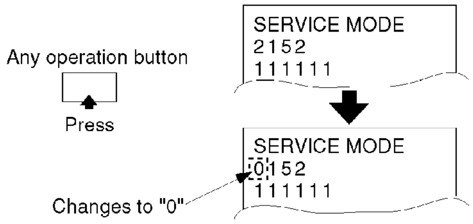
Fig. 1-5



Mechanism position	EJECT		CASSETTE DOWN		STOP		REV		PLAY/CUE/ SLOW/STILL		BRAKE		FF/REW
position code	1	2	3	4	5	6	7	8	9	A	B	C	D

3. Press any operation button except for POWER or PLAY (DVD) on either the unit, or the remote to detect that a key has been pressed. The 1st digit changes to "0" only when key is detected.

Fig. 1-6



Note:

When 1 to 4 listed in Lock code occurs, the VCR stops and all VCR function buttons except for power become non-operational.

5.1.2. SELF-DIAGNOSTIC TEST FUNCTION FOR DVD

This unit has a Self-Diagnostic function which detects a problem or malfunction within the unit and displays its corresponding Error code on TV Screen.

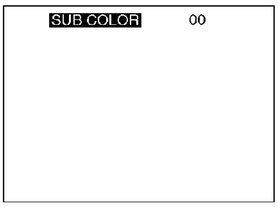
Note:

If, after approx. 30 seconds, a unit set to DVD mode automatically switches to VCR mode, there is likely a problem with the DVD Decoder C.B.A. (IC8000, IC8100, IC8200, etc.)

5.1.2.1. How to enter DVD Self-Diagnostic mode

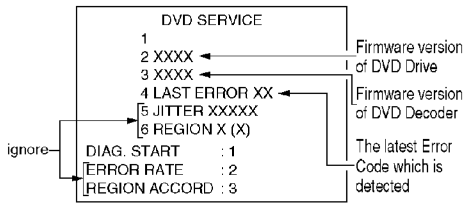
1. **Insert a DVD disc into the DVD Unit.**
2. **Set the unit to DVD mode. Then, press STOP button to stop playback.**
   Note:
   Do not let a DVD play during DVD Self-Diagnostic mode.
3. **Press and hold STOP/EJECT, PLAY/REPEAT, and VOL- buttons of VCR operation panel of the unit together for over 5 seconds with no cassette inserted. The adjustment overlay will appear on the TV screen.**

Fig. 2-1



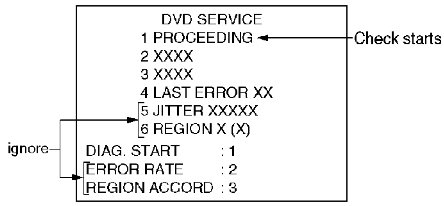
4. **Press DISPLAY key on the remote control to enter DVD Self-Diagnostic mode.**

Fig. 2-2



5. **Press ”1” key on the remote control. The DVD Self-Diagnostic Test function will start automatically.**

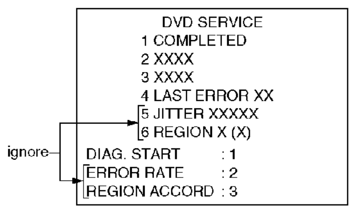
Fig. 2-3



6. **After a few minutes (approx. 1~5 minutes), the check results will appear on TV screen.**

   - **If no error is detected, "COMPLETED" will appear as shown in Fig. 2-4. Be sure to press Power OFF to end. Then, press Power ON again and remove a DVD from the DVD Unit.**

Fig. 2-4



   - **If some error is detected, 2 digit for Error Code will appear as shown in Fig. 2-5.**

Fig. 2-5

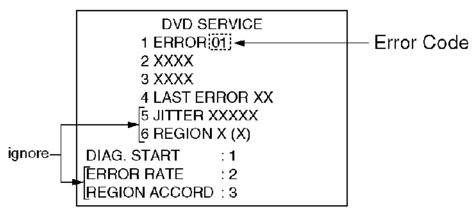


Fig. 2-6

Error Code

Error Code	Explanation of cause
00	No Error
10	Loading Error
30	Ultra DMA (Direct Memory Access) CRC Error
40	Spindle Motor Error
50	Traverse Motor Error
60	Servo Error
70	Recovery Error

5.1.3. HOW TO UPDATE THE FIRMWARE OF DVD

It is possible to update the firmware version of the DVD Drive and the DVD Decoder using each Firmware Disc for DVD Drive and DVD Decoder.

5.1.3.1. How to update the firmware of DVD

1. Confirm the firmware version of DVD Drive. Refer to "SELF-DIAGNOSTIC TEST FUNCTION FOR DVD."
2. Set the unit to DVD mode.
3. Press OPEN/CLOSE button to open the tray. Then, place the Firmware Disc for DVD Drive in the tray.
4. Close the tray. Updating will begin automatically.
5. After approx. 1 minute, the tray will open automatically.
   Note:
   If the tray has still not opened after 3 minutes or Error Indication appears, updating was unsuccessful. In this case, repeat above steps from step 1.
6. Remove the Firmware Disc from the tray. Then, disconnect the AC Plug. (The tray will not close.)
7. Connect the AC Plug and turn on the power. Then, reset all VCR memory. Refer to "HOW TO RESET ALL COMBINATION DVD VCR MEMORY FUNCTIONS."

5.1.3.2. How to update the firmware of DVD Decoder:

1. Confirm the firmware version of DVD Decoder. Refer to "SELF-DIAGNOSTIC TEST FUNCTION FOR DVD."
2. Set the unit to DVD mode.
3. Press OPEN/CLOSE button to open the tray. Then, place the Firmware Disc for DVD Decoder in the tray.
4. Close the tray. Updating will begin automatically.
5. After approx. 1 minute, the tray will open automatically.

Note:

If the tray has still not opened after 3 minutes or Error Indication appears, updating was unsuccessful. In this case, repeat above steps from step 1.

6. **Remove the Firmware Disc from the tray. Then, disconnect the AC Plug. (The tray will not close.)**
7. **Connect the AC Plug and turn on the power. Then, reset all VCR memory. Refer to "HOW TO RESET ALL COMBINATION DVD VCR MEMORY FUNCTIONS."**

CAUTION:

1. **Do not unplug the AC Cord during updating.**
2. **Do not press any buttons during updating.**

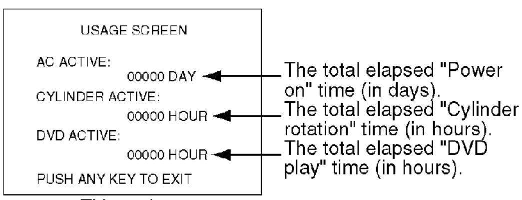
5.1.4. USAGE SCREEN MODE

Function displayed on the TV monitor:

- the total elapsed "Power on" time (in days)
- the total elapsed "Cylinder rotation" time (in hours)
- the total elapsed "DVD play" time (in hours).

1. **With power turned and no cassette, press STOP/EJECT button on VCR and 7 key on remote together.**
   The USAGE SCREEN will be displayed on the TV Monitor.

Fig. 3



<TV monitor>

Note:

1. **After replacing the Cylinder Unit, press COUNTER RESET button on remote in this mode. Only Total elapsed "Cylinder rotation" time (in days) will be cleared to 0.**
2. **After replacing the DVD Unit, press ADD/DLT button on remote in this mode. Only Total elapsed time "DVD Play" time (in hours) will be cleared to 0.**
3. **To release from Usage Screen Mode, press any operation button**

on VCR or insert a cassette tape in this mode. VCR will return to normal operation mode.

5.1.5. GROUNDING FOR ELECTROSTATIC BREAKDOWN

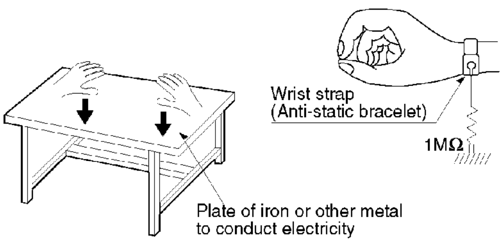
Prevention

1. **Human body grounding**
   Use the antistatic wrist strap to discharge the static electricity from your body.
2. **Work table grounding**
   Put a conductive material (sheet) or steel sheet on the area where the optical pickup is placed and ground the sheet.

Caution:

The static electricity of your clothes will not be grounded through the wrist strap. So take care not to let your clothes touch the optical pickup.

Fig. 4



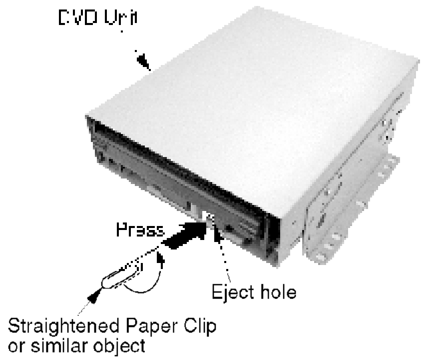
5.1.6. DVD DECODER C.B.A. REPLACEMENT NOTE

After replacing the DVD Decoder C.B.A. or EEPROM IC (IC8001), confirm the Firmware version of DVD using Self-Diagnostic function. If the version is different than that indicated on the Firmware Disc, update it using the Firmware Disc. Refer to "HOW TO UPDATE THE FIRMWARE OF DVD."

5.1.7. METHOD FOR EJECTING THE DVD TRAY MANUALLY

1. **Insert a Straightened Paper Clip or similar object into the Eject hole.**
2. **Press it gently, and then pull the Tray fully out.**

Fig. 5



5.1.8. SERVICE POSITION

5.1.8.1. Service Position

Service Position	Purpose
Service Position (1)	TV Main C.B.A. check
Service Position (2)	Mechanism check Mechanical adjustment Electrical adjustment
Service Position (3)	Power Supply C.B.A. check Main C.B.A. check Tuner Main C.B.A. check
Service Position (4)	DVD Decoder C.B.A. check

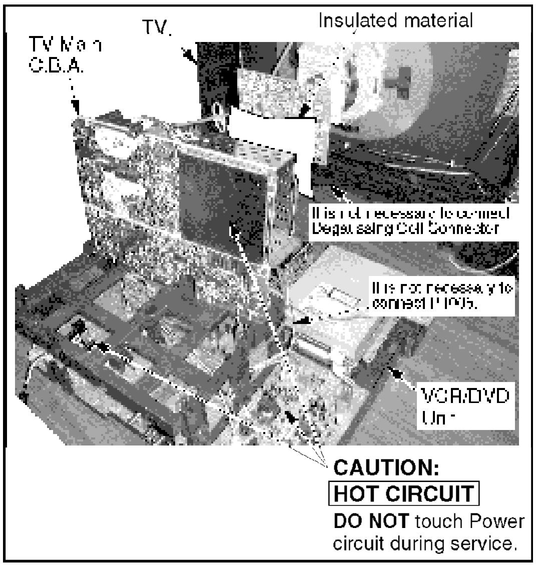
CAUTION:

HOT CIRCUIT(Primary circuit) exists on the Power Supply C.B.A., TV Main C.B.A., and Tuner Main C.B.A.

Use extreme care to prevent accidental shock when servicing.

5.1.8.1.1. Service Position (1)

Fig. 6-1

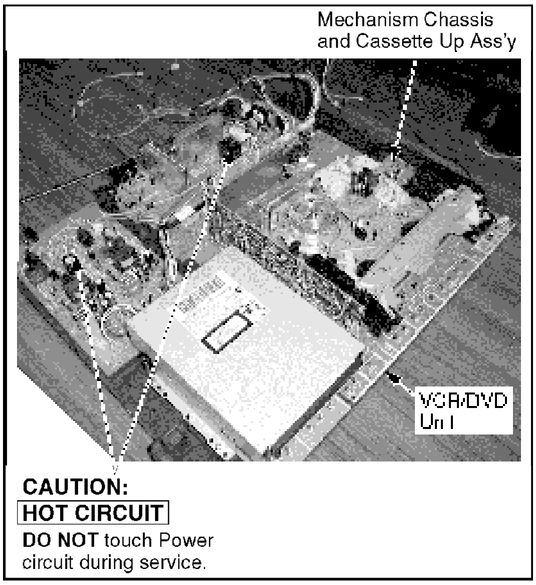


5.1.8.1.2. Service Position (2)

In Service Position (2), the VCR/DVD Unit works without the TV Main Ass'y being connected to the TV Monitor.

In this position, Mechanism check, Mechanism adjustment, and Electrical adjustment can be performed.

Fig. 6-2



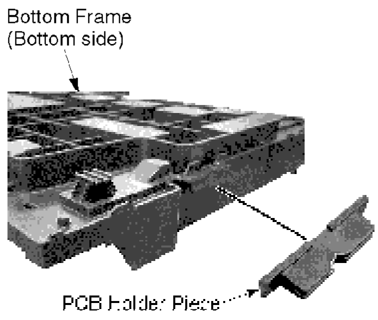
5.1.8.1.3. Service Position (3-1)

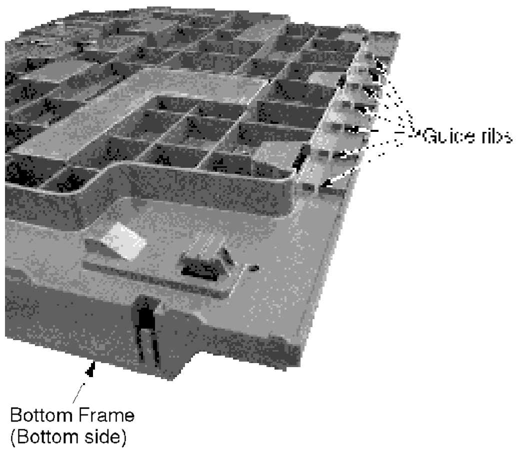
In Service Position (3-1), the VCR/DVD Unit works without the TV Main Ass'y being connectecd to the TV Monitor.

In this position, the Power Supply C.B.A. check, the Main C.B.A. check, and the Tuner Main C.B.A. check can be performed.

1. **Remove the Rear Cover and VCR/DVD Ass'y.**
2. **Remove the TV Main Ass'y, CRT Unit, Tuner Main C.B.A., Power Supply C.B.A., VCR Chassis Unit, DVD Unit, DVD Decoder C.B.A., and Operation C.B.A. from Bottom Frame.**
3. **Remove the Clampers on Bottom Frame. Then, place the Bottom Frame upside down. Then, remove the PCB Holder Piece from the Bottom Frame as shown.**

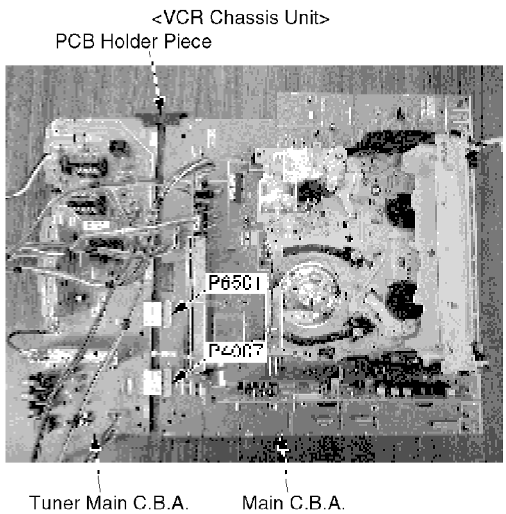
Fig. 6-3-1





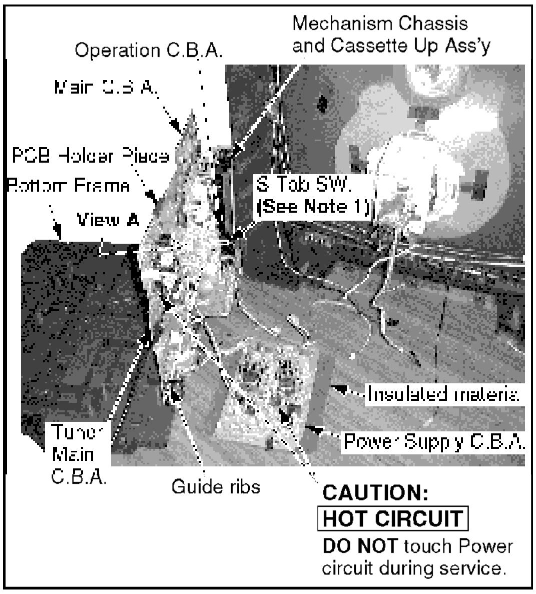
4. **Place the VCR Chassis Unit and Tuner Main C.B.A. on the Table. Then, connect the Connector P4007 and P6501.**
5. **In order to stabilize C.B.A.s, attach the PCB Holder Piece to both C.B.A.s. as shown.**

Fig. 6-3-2



6. **Place it along with Guide ribs on the Bottom Frame as shown.**

Fig. 6-3-3

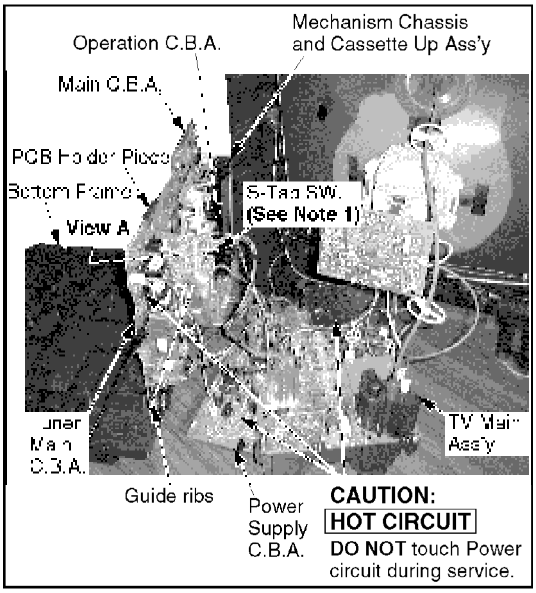


5.1.8.1.4. Service Position (3-2)

If it is necessary to use the TV Monitor, connect the TV Main Ass'y to the VCR Chassis Unit as follows.

1. **Perform steps 1~4 of Service Position (3-1) in the same way.**
2. **Place the TV Main Ass'y as shown.**

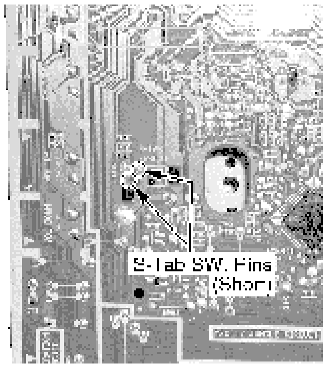
Fig. 6-3-4



Note:

1. **It is possible that the S-Tab SW. may not work correctly in Service Positions (3-1) and (3-2). (Recording can not be done). In this case, short the S-Tab SW. Pins on the foil side of Main C.B.A. to turn this SW. on.**

Fig. 6-3-5



Main C.B.A. (foil side)

View A

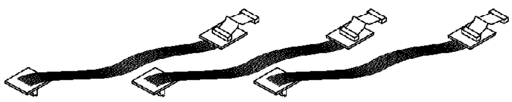
Alternative method:
Cover the S-Tab SW. with masking tape.

5.1.8.1.5. Service Position (4)

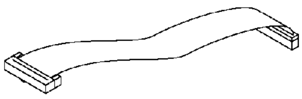
In Service Position (4), the DVD Decoder C.B.A. with Extension Cable (LSUA0034) X3 and Connector Cable (IDE Cable) (Not supplied) can be peformed.

Fig. 6-4-1

Extension Cable (LSUA0034) 3pcs



Connector Cable (IDE Cable) Not supplied (Purchase locally)



1. **Remove the DVD Unit and the DVD Decoder C.B.A.**
   Note:
   Remove the original Connector Cable (IDE) from the DVD Unit. (The original Connector Cable (IDE) is not used in this position.)
2. **Conect the Connector Cable (Power) and the Connector Cable (IDE Cable) to the DVD Unit from the DVD Decoder C.B.A.**
3. **Connect the 3 Extension Cables as follows:**

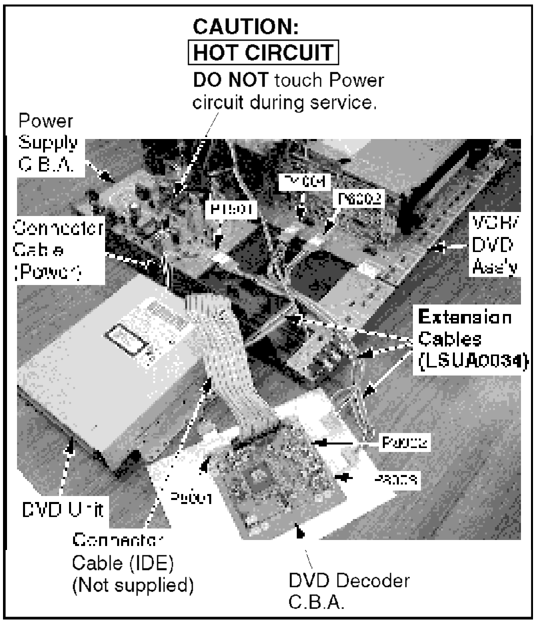
   - With Extension Cable (LSUA0034): P8001 on the DVD Decoder C.B.A. to P1501 on the Power Supply C.B.A.

   - With Extension Cable (LSUA0034): P8002 on the DVD Decoder C.B.A. to P4004 on the Main C.B.A.

   - With Extension Cable (LSUA0034): P8003 on the DVD Decoder C.B.A. to P6002 on the Main C.B.A.

4. Place the DVD Unit and DVD Decoder C.B.A. as shown.

Fig. 6-4-2



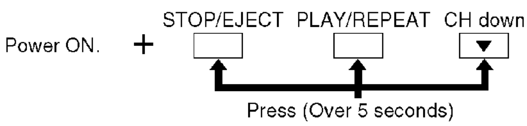
5.1.9. HOT CIRCUIT

Primary circuit exists on the Power Supply C.B.A., TV Main C.B.A., and Tuner Main C.B.A. This circuit is identified as " HOT " on the C.B.A. and in the Service Manual. Use extreme care to prevent accidental shock when servicing.

5.1.10. SERVICE MODE

In order to inhibit detection of the Supply & Takeup Photo Transistors, Reel Sensor, and Cylinder Lock, press and hold STOP/EJECT, PLAY/REPEAT, and CH down buttons of VCR operation panel on the unit together over 5 secondsin power on condition.

Fig. 7



The unit goes into service mode.
In this mode, Mechanism movement can be confirmed. When removing Cassette Up Ass'y, it can be confirmed without a cassette.
To release from this mode, press POWER button off or disconnect AC Plug.

5.1.11. CAUTION FOR INSTALLATION OF VCR/DVD ASS'Y

CAUTION:

Opener Lever may be damaged when VCR/DVD Ass'y is installed, with Cassette Door-Lid and Opener Lever of Cassette Up Ass'y set incorrectly.

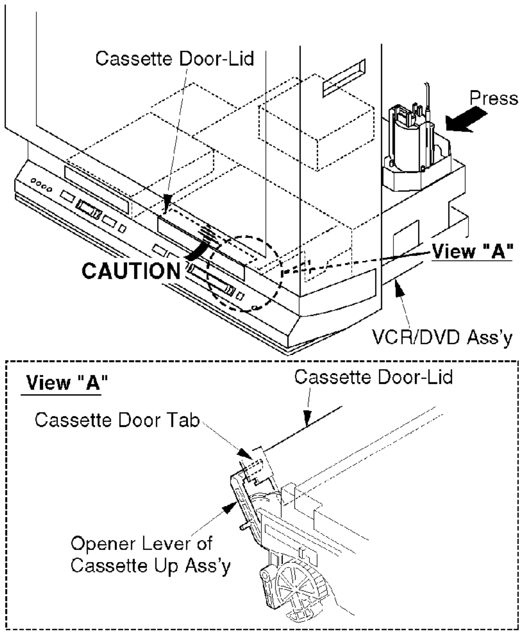
Install the VCR/DVD Ass'y as follows:

1. Swing the Cassette Door-Lid all the way open until the Cassette

Door tab clears the Opener Lever.

2. **Make sure that all guide tabs are aligned properly. Then, press the VCR/DVD Ass'y straight in.**

Fig. 8



5.1.12. METHOD FOR LOADING/UNLOADING OF MECHANISM

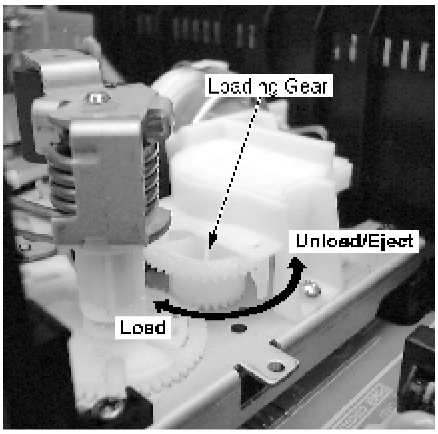
5.1.12.1. (Manual Method)

Turn the Loading Gear clockwise (for loading) or counterclockwise (for unloading) using needlenose pliers etc.

Note:

Do not use this method if Mechanism is jammed or locked.

Fig. 9-1



5.1.12.2. (Electrical Method)

Apply +10.0 V DC Power Supply to the Loading Motor terminals.

Loading

DC + to Portion "a," DC - to Portion "b"

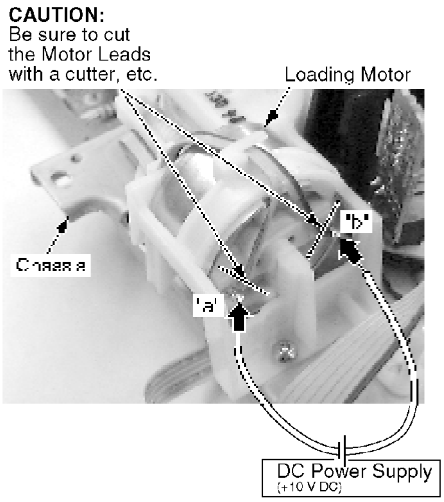
Unloading

DC - to Portion "a," DC + to Portion "b"

CAUTION:

Before applying DC Power Supply, be sure to cut the Motor Leads with a cutter, etc.
Otherwise, the Loading Motor Drive IC (IC2501) may be damaged.

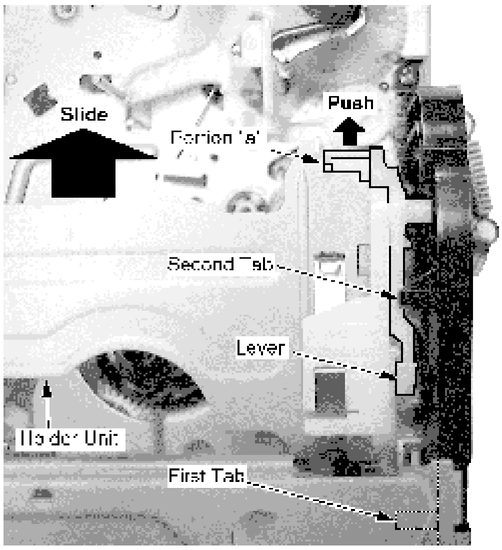
Fig. 9-2



5.1.12.2.1. WHEN LOADING WITHOUT A CASSETTE

When loading without a cassette, push Portion "a" on the Holder Unit of Cassette Up Ass'y so that the Lever clear the First Tab and Second Tab.

Fig. 9-3



5.1.13. HOW TO REMOVE A JAMMED TAPE

CAUTION:

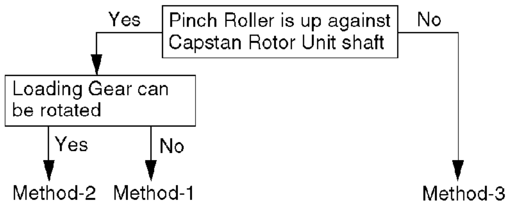
Wiper Arm Unit may be damaged or its spring may be out of place when the jammed tape is removed by force.

Remove a jammed tape as follows:

5.1.13.1. Manual Method

When a tape jam is encountered, check the tape loading condition and use the following procedure to remove a tape jam.

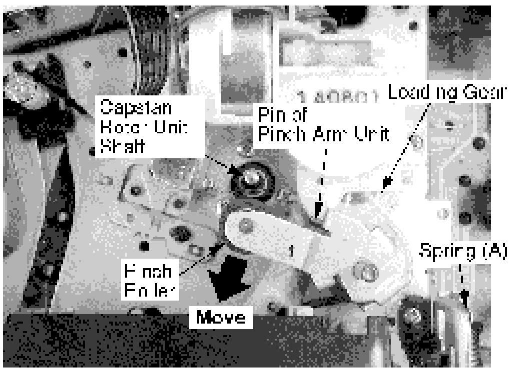
Fig. 10-1



Method -1:

1. **Move the Pinch Roller Unit out by unhooking the Pin of Pinch Arm Unit so that the Pinch Roller is separated from the Capstan Rotor Unit shaft.**

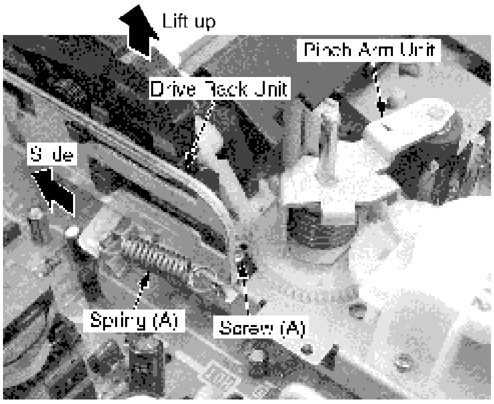
Fig.10-2



Top View

2. **Remove the tape from the tape path.**
3. **Rewind the tape into the cassette by rotating the Center Clutch Unit counterclockwise.**
4. **Unhook Spring (A) of the Drive Rack Arm.**
5. **Remove Screw (A).**
6. **Lift the Cassette Up Ass'y. While pulling the Cassette Up Ass'y out far enough so that it clears the Drive Rack Arm, slide the Drive Rack Unit as indicated by the arrow to remove the cassette tape from the Cassette Up Ass'y.**
7. **Check the cause of mechanical trouble and repair.**

Fig. 10-3



Method -2:

1. Rotate Loading Motor counterclockwise with needlenose pliers, etc. so that the Pinch Roller is separated from the shaft of the Capstan Rotor Unit.
2. Perform Step 2 through Step 7 of Method -1.

Method -3:

1. Perform Step 2 through Step 7 of Method -1.

Note:

After repairing mechanical trouble, make sure that all gear alignments are correct, especially the Wiper Arm Unit and Drive Rack Unit of Cassette Up Ass'y. (Refer to "EJECT Position Confirmation"in Disassembly/Assembly Procedures.)

5.1.13.2. Electrical Method

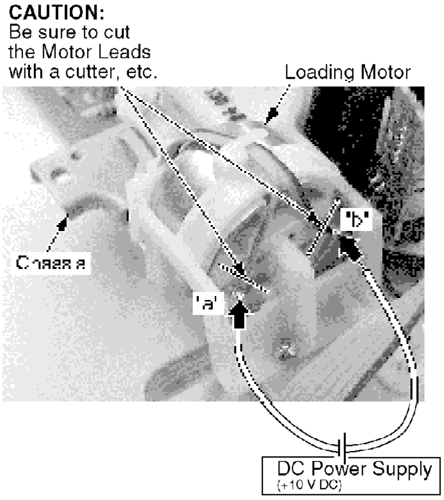
Electrical method can only be performed when the mechanism is moved by rotating the Loading Gear.

CAUTION:

- Before applying DC Power Supply, be sure to cut the Motor Leads with a cutter, etc.
  Otherwise, the Loading Motor Drive IC (IC2501) may be damaged.
- If loading does not start in approx. 2 seconds after DC Power Supply is applied, DO NOT continue to apply DC Power Supply. Instead, perform "Manual Method."

1. Be sure to cut the Motor Leads with a cutter, etc.
2. Apply +10.0 V DC Power Supply to the Loading Motor terminals.
3. When the Loading Posts reach the fully unloaded position, remove the Power Supply.

Fig. 11



4. Rewind the tape into the cassette by turning the Center Clutch Unit counterclockwise.

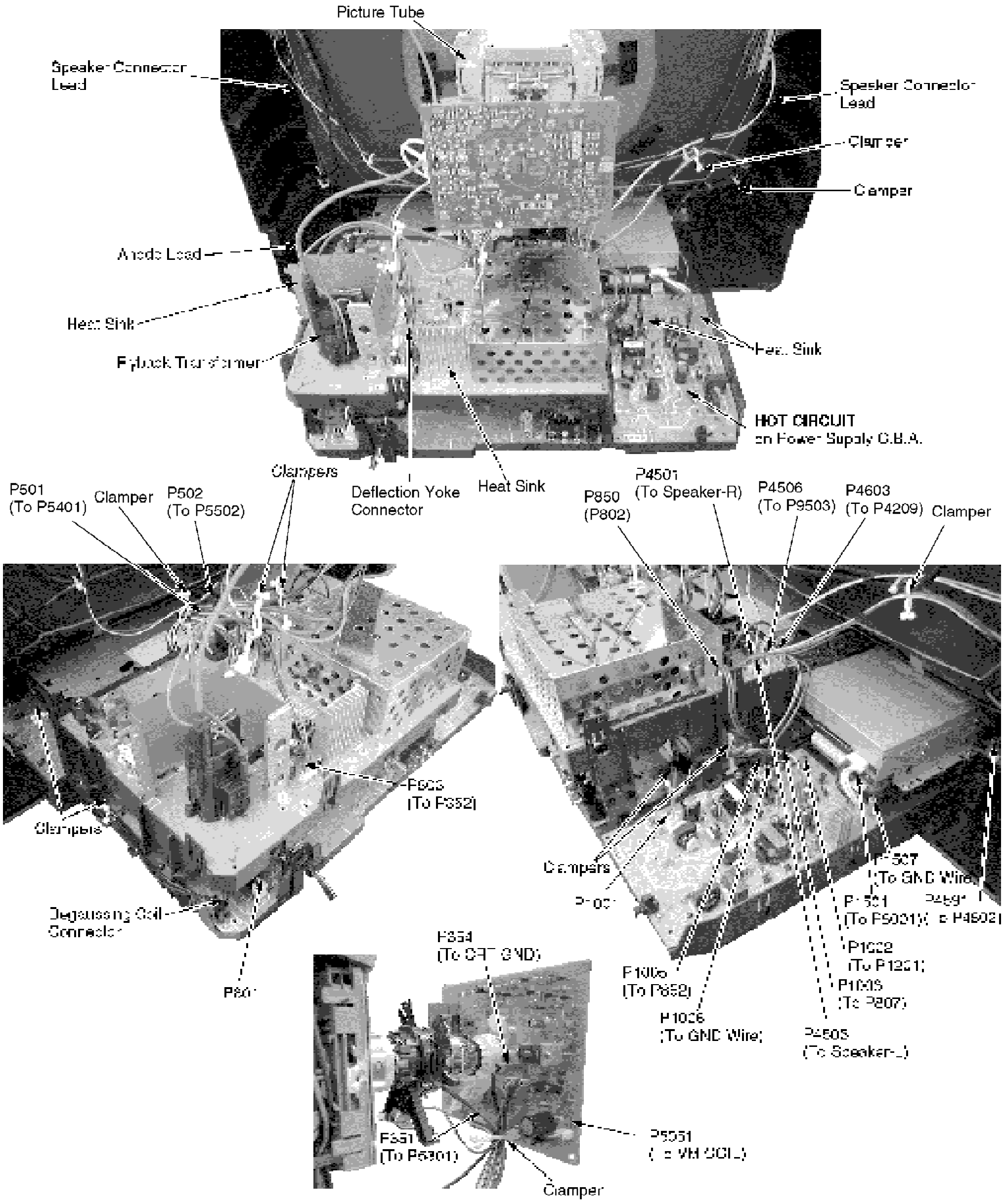
5. Eject the cassette by applying +10.0 V DC Power Supply again.

5.1.14. WIRE AND LEAD POSITION DIAGRAM

Fig. 12

After servicing, make sure that all wires, leads, and clampers are placed in their original position. It is important for the best operation of the unit.

Note:
No lead wires or flat cables should touch any heating parts or the Heat Sink Plate.
Use extreme care especially for followings.



5.1.15. DEFEATING THE AUTO TRACKING

To defeat the Auto Tracking Function, place the instrument in the STOP mode and place a jumper between TP6003 and TP6009 on the Main C.B.A. The tracking will be placed in the neutral position.

5.1.16. HOW TO SET TRACKING TO THE NEUTRAL POSITION

Ejecting the cassette tape and then reinserting it will reset the tracking to the Neutral position.

5.1.17. BLACK SCREWS ON THE CHASSIS

Black Screws are used on the Mechanism Chassis to identify screws that require adjustment.

5.1.18. HOW TO RESET ALL COMBINATION DVD VCR MEMORY FUNCTIONS

To reset (clear) the select language, channel auto set and set clock functions to their initial power on condition (power on, no cassette inserted), hold down the PLAY/REPEAT and FF buttons of VCR operation panel on the unit together formore than 5 seconds.
Power will shut off.

5.1.19. HOW TO CONFIRM AUTO CLOCK SET FEATURE

1. Connect an RF cable from the output of one unit to the input of the test unit.
2. Select corresponding RF channels.
3. Playback a recording of P.B.S. channel including clock set data and confirm this feature.

5.1.20. VARIABLE VOLTAGE ISOLATION TRANSFORMER

An Isolation Transformer should always be used during the servicing of Combination VCR whose chassis is not isolated from the AC power line. Use a transformer of adequate power rating as this protects the technician from accidents resulting in personalinjury from electrical shocks. It will also protect Combination VCR from being damaged by accidental shorting that may occur during servicing.
Also, when troubleshooting the above type of Power Supply Circuit, a variable isolation transformer is required in order to increase the input voltage slowly.

5.1.21. SPECIAL NOTE

All integrated circuits and many other semiconductor devices are electrostatically sensitive and therefore require the special handling techniques described under the "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" section of this service manual.

5.1.22. MODEL NO. IDENTIFICATION MARK

Use Marks shown in the chart below to distinguish the different models included in this Service Manual.

MODEL	MARK
PV-DF2702	A
PV-DF2702-K	B
Not Used	PT

Note:
Refer to Item 3 of Schematic Diagram Notes of Schematic Diagram and Circuit Board Layout Notes, for mark "PT."

6. DISASSEMBLY/ASSEMBLY PROCEDURES

6.1. CABINET SECTION

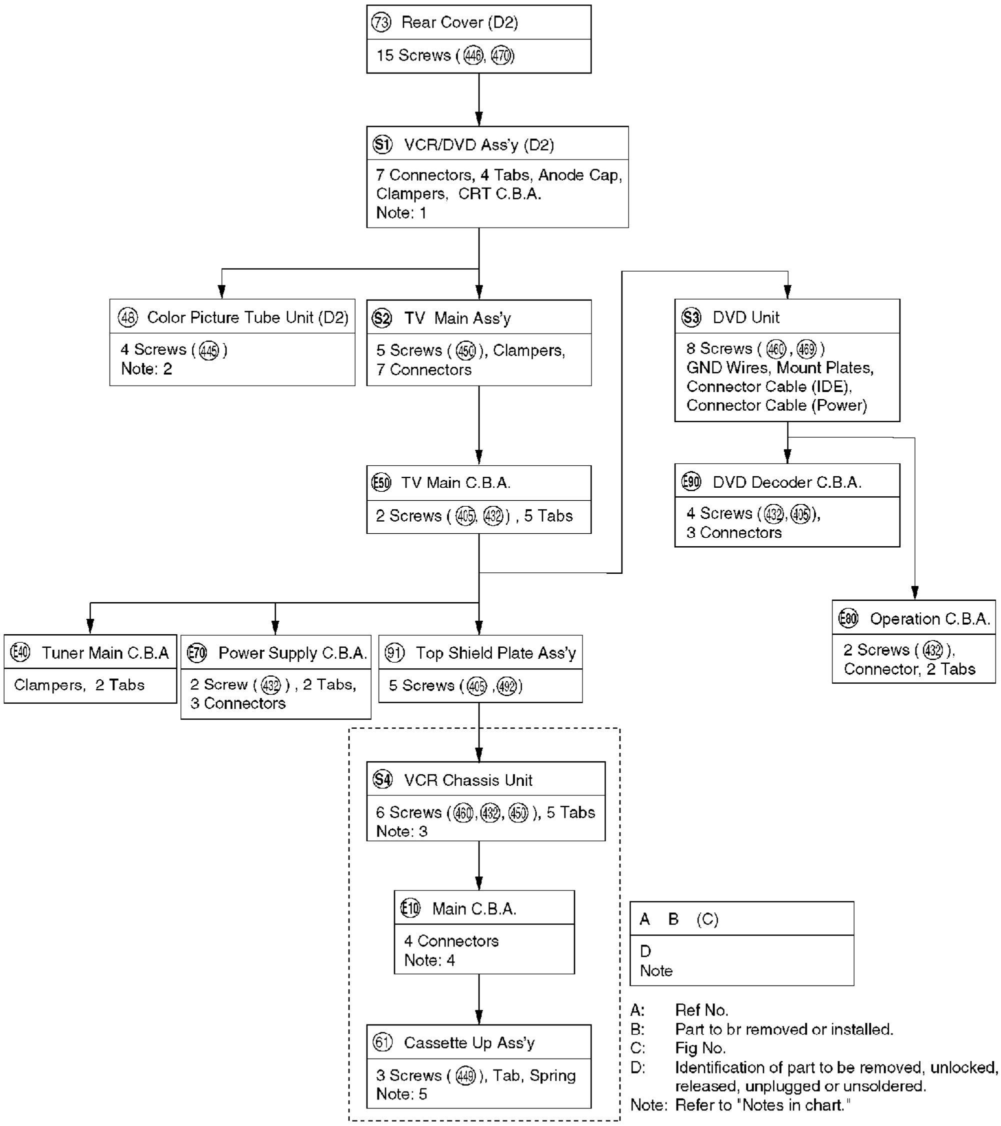
6.1.1. Disassembly Flowchart

Perform all disassembly procedures in the order described in the "Disassembly Flowchart" shown below. When reassembling, use the reverse procedure.

CAUTION:

Disconnect AC plug before disassembly.

Fig. D1



73 Rear Cover (D2)
15 Screws (446, 470)
S1 VCR/DVD Ass'y (D2)
7 Connectors, 4 Tabs, Anode Cap, Clampers, CRT C.B.A.
Note: 1
46 Color Picture Tube Unit (D2)
4 Screws (445)
Note: 2
S2 TV Main Ass'y
5 Screws (450), Clampers, 7 Connectors
S3 DVD Unit
8 Screws (460, 469)
GND Wires, Mount Plates, Connector Cable (IDE), Connector Cable (Power)
E50 TV Main C.B.A.
2 Screws (405, 432), 5 Tabs
E90 DVD Decoder C.B.A.
4 Screws (432, 405), 3 Connectors
E80 Operation C.B.A.
2 Screws (432), Connector, 2 Tabs
E40 Tuner Main C.B.A
Clampers, 2 Tabs
E70 Power Supply C.B.A.
2 Screw (432), 2 Tabs, 3 Connectors
91 Top Shield Plate Ass'y
5 Screws (405, 492)
S4 VCR Chassis Unit
6 Screws (460, 432, 453), 5 Tabs
Note: 3
E10 Main C.B.A.
4 Connectors
Note: 4
61 Cassette Up Ass'y
3 Screws (449), Tab, Spring
Note: 5
A B (C)
D
Note
A: Ref No.
B: Part to br removed or installed.
C: Fig No.
D: Identification of part to be removed, unlocked, released, unplugged or unsoldered.
Note: Refer to "Notes in chart."

Fig. D2

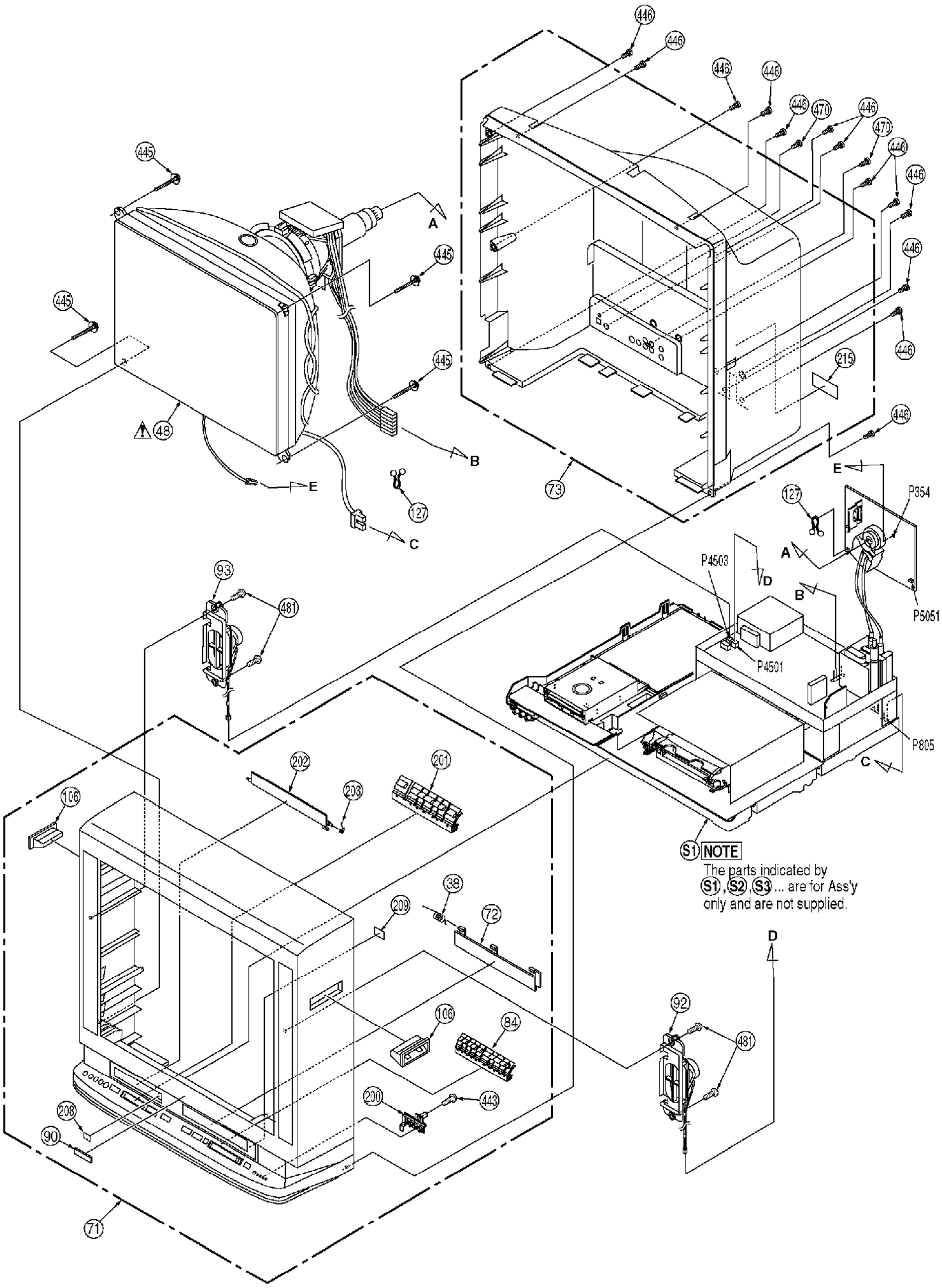
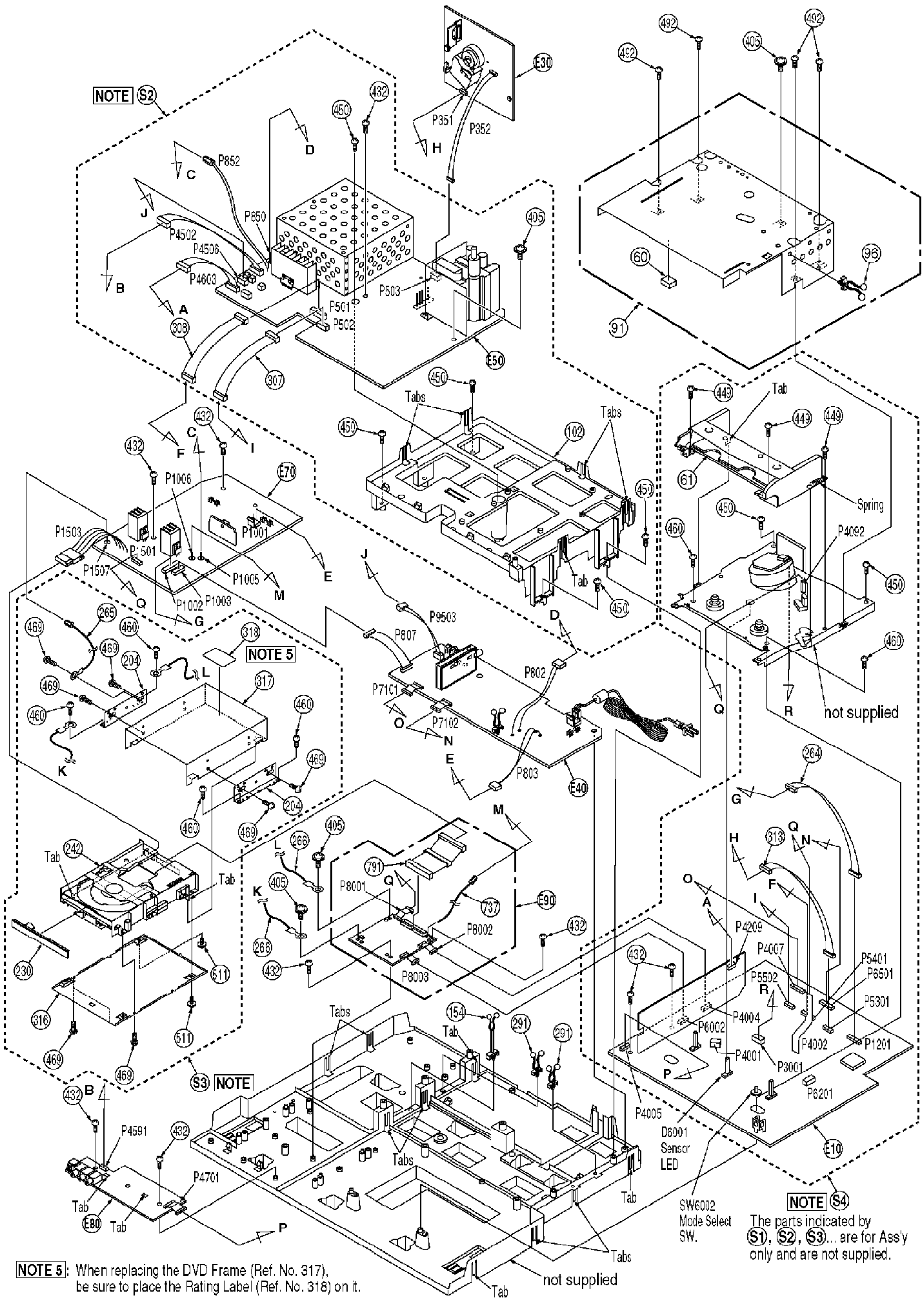

446
470
215
73
445
48
A
B
C
D
E
127
P354
P5051
P4503
P4501
P805
93
481
92
202
203
201
106
209
38
72
108
84
200
443
208
90
71
S1 NOTE
The parts indicated by
S1, S2, S3 ... are for Ass'y
only and are not supplied.

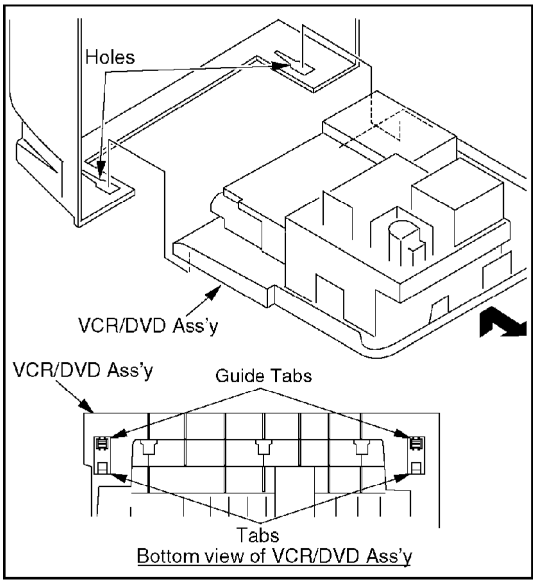
Fig. D3



6.1.1.1. Notes in chart

1. Removal of VCR/DVD Ass'y

Fig. D4



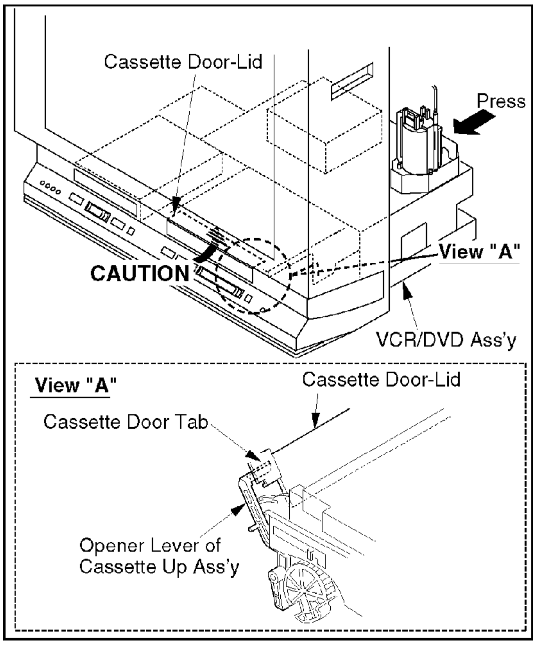
Installation of VCR/DVD Ass'y

CAUTION:

Opener Lever may be damaged when VCR/DVD Ass'y is installed, with Cassette Door-Lid and Opener Lever of Cassette Up Ass'y set incorrectly.

1. **When installing the VCR/DVD Ass'y, swing the Cassette Door-Lid all the way open until the Cassette Door tab clears the Opener Lever.**
2. **Make sure that all guide tabs are aligned properly.**
   Then, press the VCR/DVD Ass'y straight in.

Fig. D5



2. Removal of Color Picture Tube Unit

Place the Unit face down on a soft cloth before removing the Color Picture Tube Unit.

3. Installation of VCR Chassis Unit

When installing 2 Screws (460), slide the Holder Unit of the Cassette Up Ass'y (Refer to "WHEN LOADING WITHOUT A CASSETTE" in Service Notes) to tighten screws. Then, slide it back to the EJECT Position.

Make sure that Mechanism and Cassette Up Ass'y are in the EJECT Position. (Refer to "EJECT Position Confirmation" in Disassembly/Assembly Procedures.)

4. Removal of Main C. B. A.

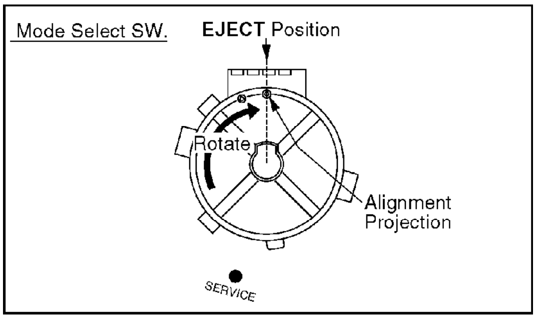
Work carefully so as not to break Sensor LED when lifting the Mechanism Chassis and Cassette Up Ass'y.

Installation of Mechanism Chassis and Cassette Up Ass'y onto Main C.B.A.

A. Make sure the Mode Select SW. on the Main C.B.A. is in EJECT position. If not, rotate the Mode Select SW. until the alignment projection is in the EJECT Position.

B. Make sure the Mechanism and Cassette Up Ass'y are in the EJECT Position. (Refer to "EJECT Position Confirmation" in DISASSEMBLY/ASSEMBLY PROCEDURES.)

Fig. D6



C. Install the Mechanism Chassis and Cassette Up Ass’y straight onto the Main C.B.A. so that the Sensor LED clears the hole in the Mechanism Chassis and that 3 Connectors (P6201, P3001 and P4001) are aligned and seated securely.

5. Installation of Cassette Up Ass'y

A. Confirm that the Locking Tab under the Cassette Up Ass'y is in Hole on the Mechanism Chassis when installing the Cassette Up Ass'y. Then, slide the Cassette Up Ass'y towards the back.

B. When installing 2 Screws (449), slide the Holder Unit (Refer to " WHEN LOADING WITHOUT A CASSETTE" in Service Notes) to tighten screws. Then, slide it back to the EJECT Position.

C. Hook Spring to the Drive Rack Arm on the Mechanism Chassis.

6.2. MECHANISM SECTION

6.2.1. Disassembly/Reassembly Method

This procedure starts with the condition that the cabinet parts and TV/VCR Main C.B.A. have been removed.
When reassembling, perform the step(s) in the reverse order.
Perform all disassembly/reassembly and alignments procedures in EJECT Position.

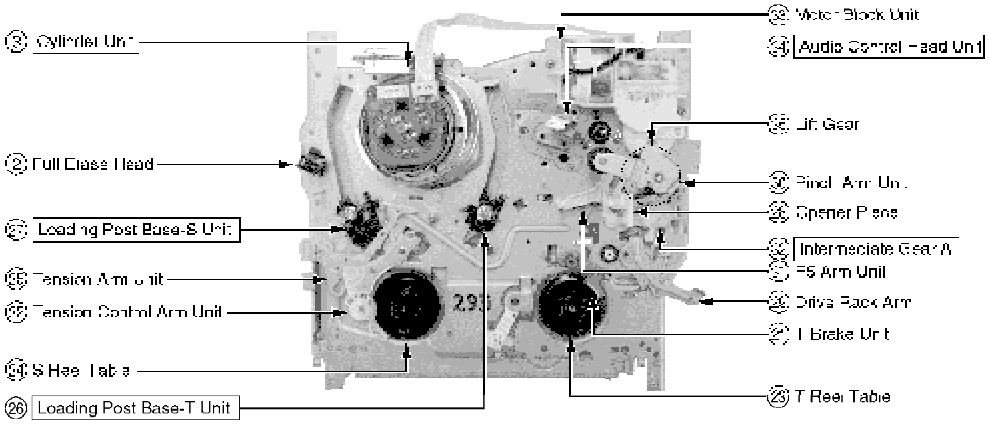
Step/Loc. No.	Prior Step(s)	Part	Fig. No.	Remove	Alignment/Adjustment
①	------------	Not used	-	-	
②	------------	Full Erase Head	J2	(L-1)	
③	1	Cylinder Unit	J2	2(S-2), 3(S-3), Flexible Cable, Head Amp C.B.A., Unsolder	TAPE INTERCHANGEABILITY Adjustment
④	------------	Capstan Belt	J3-1	-	
⑤	------------	Support Angle	J3-1	(S-4), (S-5)	
⑥	5	Intermediate Gear B	J3-1	(L-2)	Gear Alignment
⑦	4,5,6	Main Cam Gear	J3-1	Main Cam Push Nut	Gear Alignment
⑧	4	Center Clutch Unit	J4-1	(W-1)	
⑨	4,8	Changing Gear Spring	J4-1	-	
⑩	4,8,9	Changing Gear	J4-1	-	
⑪	4,8,9,10	Idler Arm Unit	J4-1	-	
⑫	------------	Reel Gear	J5-1	2(L-3)	
⑬	4,5,6,7,8,9,10	Main Rod	J5-1	(W-2), (L-4)	Gear Alignment
⑭	------------	Not used	-	-	
⑮	4	Capstan Motor Unit	J6	3(S-6)	
⑯	------------	Not used	-	-	
⑰	------------	Not used	-	-	
⑱	------------	Not used	-	-	
⑲	4,8,9,10,13	T Loading Arm Unit	J7-1	-	Gear Alignment
⑳	4,5,6,7,8,9,10,13,19	S Loading Arm Unit	J7-1	-	Gear Alignment
㉑	------------	T Brake Unit	J8-1	-	
㉒	------------	Tension Control Arm Unit	J8-1	3(L-5)	
㉓	21	T Reel Table	J8-1	-	
㉔	22	S Reel Table	J8-1	-	
㉕	22	Tension Arm Unit	J8-1	2(L-6), (P-1), (P-2)	
㉖	22,25	Loading Post Base-T Unit	J9	-	P2 AND P3 POST HEIGHT, TAPE INTERCHANGEABILITY Adjustment
㉗	22,25	Loading Post Base-S Unit	J9	-	
㉘	------------	Opener Piece	J10-1	2(L-7)	
㉙	4,5,6,7	Drive Rack Arm	J10-1	-	
㉚	28	Pinch Arm Unit	J10-1	-	
㉛	28,30	P5 Arm Unit	J10-1	-	
㉜	5,6,28	Intermediate Gear A	J10-1	-	Gear Alignment
㉝	------------	Motor Block Unit	J11	2(S-9)	
㉞	------------	Audio Control Head Unit	J11	(S-10)	TAPE INTERCHANGEABILITY Adjustment
㉟	5,6,28,30,32,33	Lift Gear	J11	-	
㊱	------------	Not used	-	-	
㊲	22,25	Tension Arm Boss	J11	(L-8)	
㊳	------------	SS Brake Arm Unit	J5-1	(L-9), (P-3)	

6.2.2. Inner Parts Location

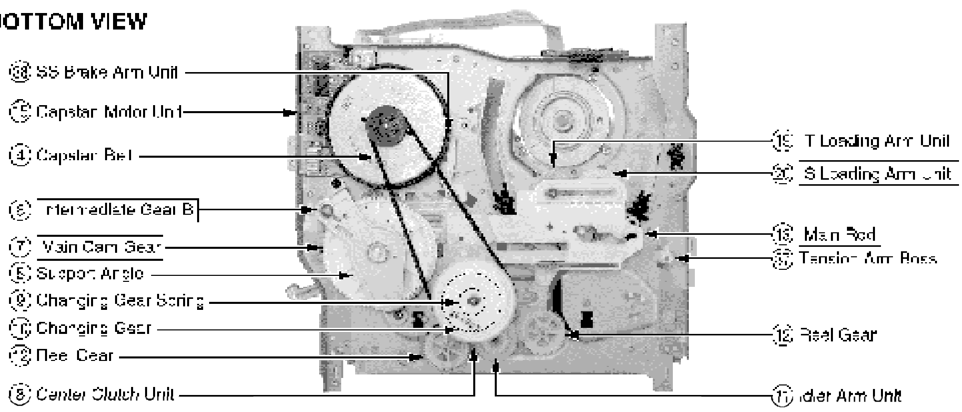
Note: BOX indicates alignment (Gear Alignment or Mechanical Adjustment) required when a part is replaced.

Fig. J1-1

TOP VIEW



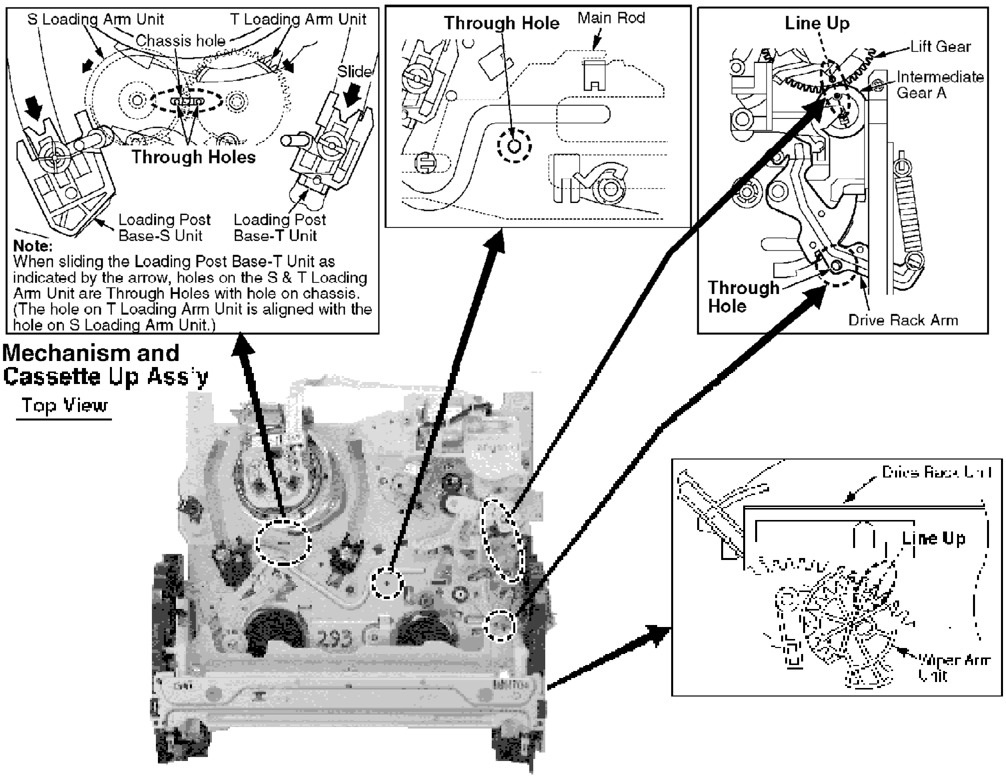
BOTTOM VIEW



6.2.3. EJECT Position Confirmation

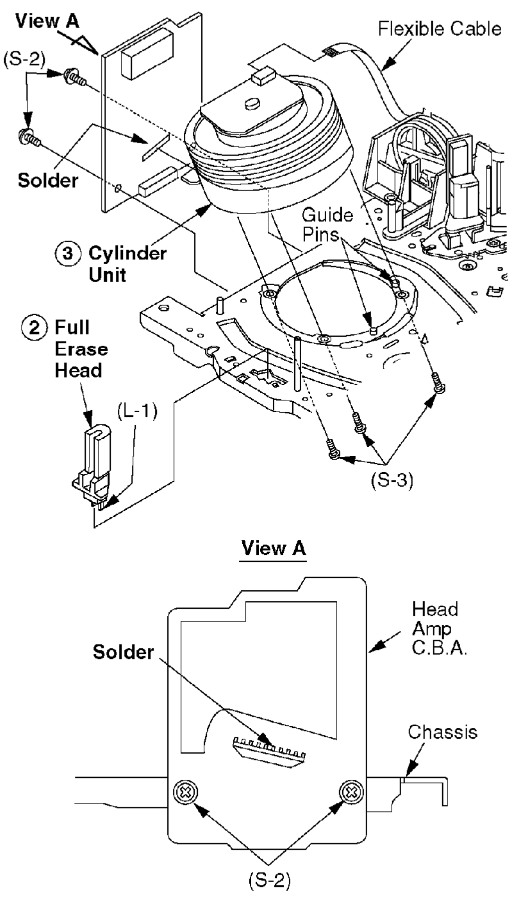
Fig. J1-2

Check the following alignment points to confirm that the Mechanism and Cassette Up Ass'y are in the **EJECT** Position from the top side.



6.2.4. Full Erase Head and Cylinder Unit

Fig. J2



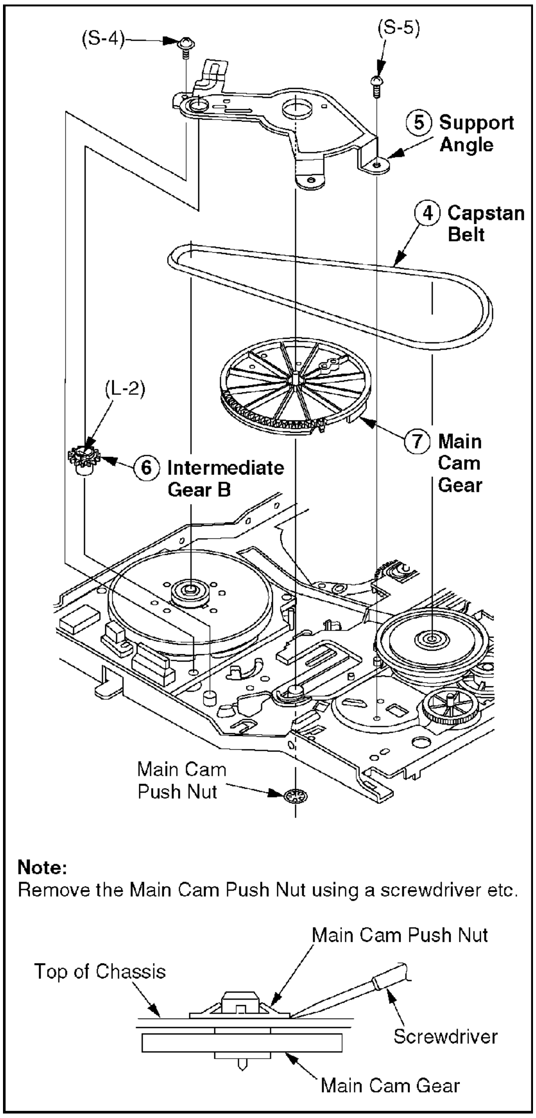
Note:
Use extreme care when removing or replacing the Cylinder Unit. Do not touch the Video Heads during servicing.

6.2.4.1. Reassembly Notes

1. After replacing the Cylinder Unit, clear the Total elapsed "Cylinder rotation" time (in hours) to 0. Refer to "USAGE SCREEN MODE" in SERVICE NOTES.

6.2.5. Capstan Belt, Support Angle, Intermediate Gear B, and Main Cam Gear

Fig. J3-1



6.2.5.1. Reassembly Notes

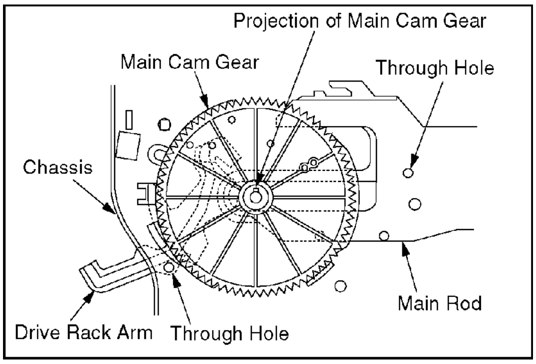
1. Alignment of Main Cam Gear, Drive Rack Arm, and Main Rod

A. Confirm that the hole on Main Rod is a Through Hole with a hole on chassis.

B. Confirm that the hole on Drive Rack Arm is a Through Hole with a hole on chassis.

C. Install the Main Cam Gear so that the projection of Main Cam Gear is in the upward position as shown.

Fig. J3-2

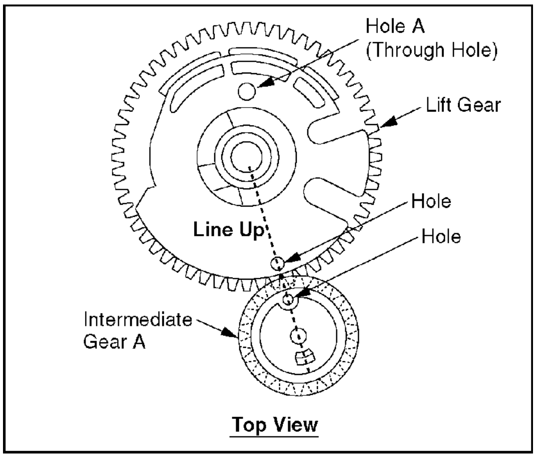


2. Confirmation/Alignment of Intermediate Gear B, Main Cam Gear, and Intermediate Gear A

A. Confirm that the Hole A on Lift Gear is a Through Hole with a hole on chassis.

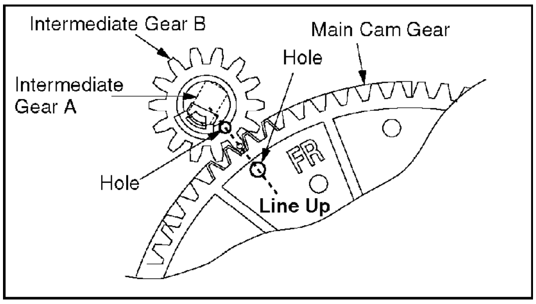
B. Confirm that the hole on Intermediate Gear A is aligned with the hole on Lift Gear.

Fig. J3-3



C. Install the Intermediate Gear B so that the hole on the Intermediate Gear B is aligned with the hole on the Main Cam Gear.

Fig. J3-4

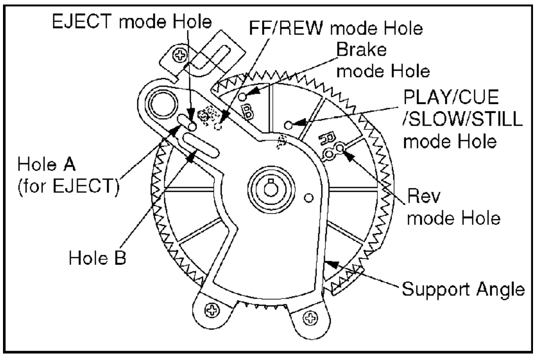


3. Holes on Main Cam Gear

A. The EJECT mode Hole on Main Cam Gear should be a Through

Hole with Hole A on Support Angle in EJECT mode. The each mode Hole on Main Cam Gear should be a Through Hole with Hole B on Support Angle in each mode.

Fig. J3-5



4. Main Cam Gear Kit

A. Main Cam Gear is supplied as a Main Cam Gear Kit only (Kit No. VVGS0009).

Main Cam Gear Kit consists of a Main Cam Gear and a Main Cam Push Nut.

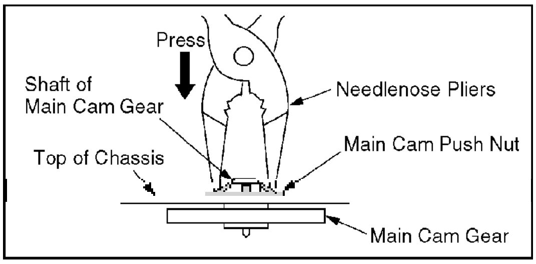
However, Main Cam Push Nut is available separately as a replacement part.

5. Installation of Main Cam Gear and Main Cam Push Nut

A. After installing the Support Angle, install the Main Cam Push Nut with Needlenose Pliers etc. so that it is flush with the chassis.

There may be some slight scratches on the Shaft of Main Cam Gear, when removing the Main Cam Gear. In case that the Main Cam Gear can be installed securely without tottering, it is fine to use the one. If any tottering, install all new parts.

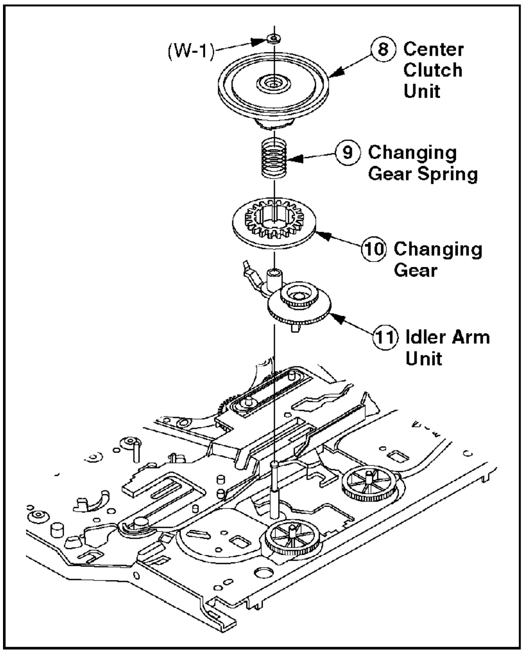
Fig. J3-6



6. The Main Cam Push Nut is not reusable. Install a new one.

6.2.6. Center Clutch Unit, Changing Gear Spring, Changing Gear, and Idler Arm Unit

Fig. J4-1

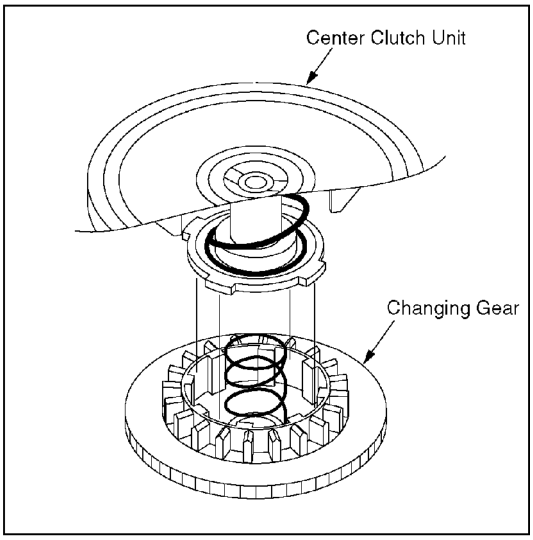


6.2.6.1. Reassembly Notes

1. Installation of Center Clutch Unit

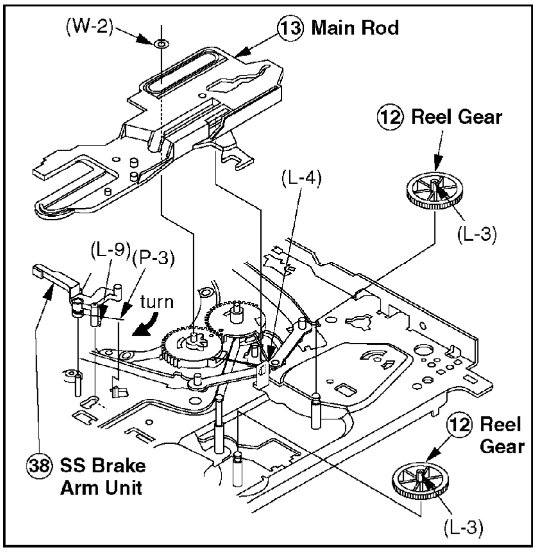
A. Fit the Center Clutch Unit into the Changing Gear.

Fig. J4-2



6.2.7. Reel Gear, Main Rod, and SS Brake Arm Unit

Fig. J5-1

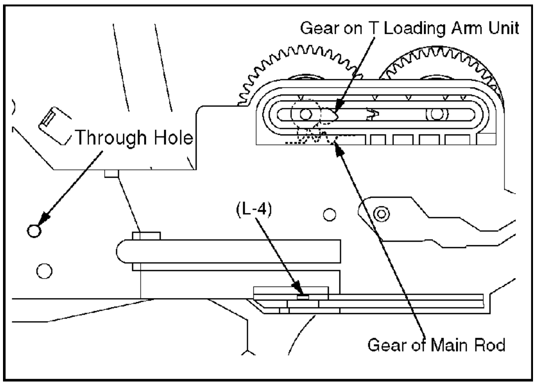


6.2.7.1. Reassembly Notes

1. Alignment of Main Rod and T Loading Arm Unit

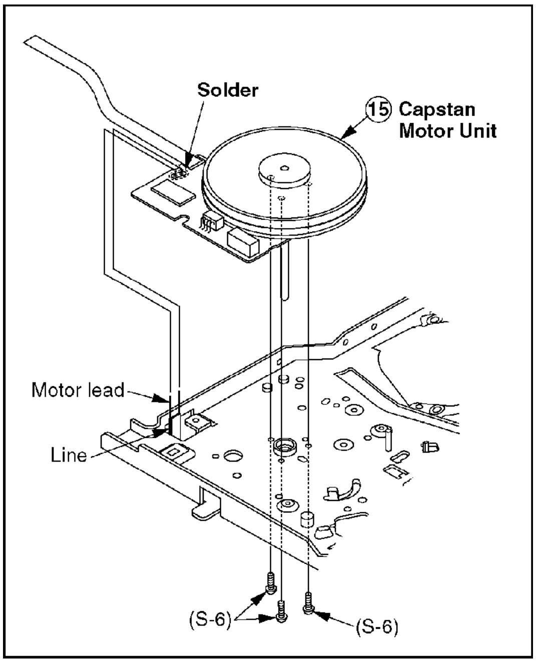
A. Align the Gear of T Loading Arm Unit with Gear of Main Rod. Confirm that the Hole on Main Rod is a Through Hole with a hole on chassis.

Fig. J5-2



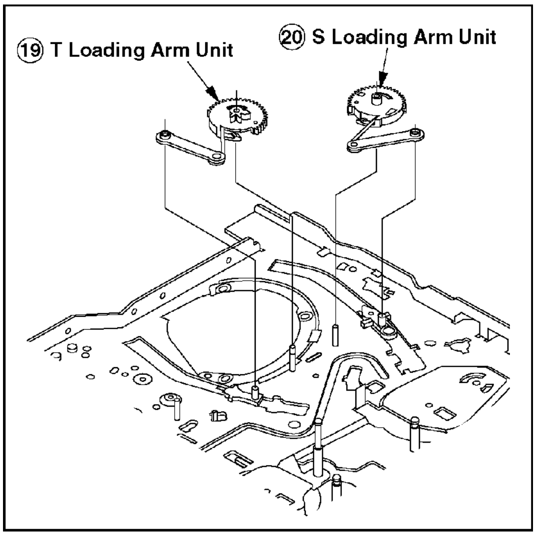
6.2.8. Capstan Motor Unit

Fig. J6



6.2.9. T Loading Arm Unit and S Loading Arm Unit

Fig. J7-1



6.2.9.1. Reassembly Notes

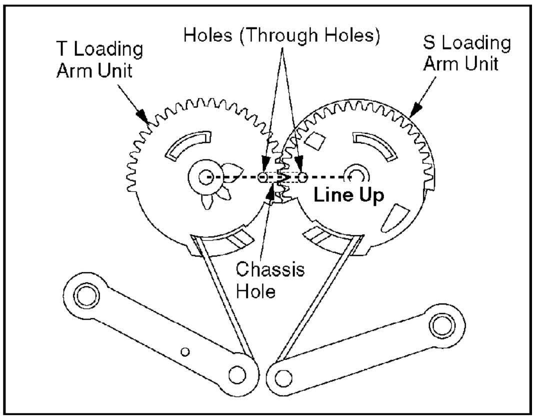
1. Alignment of T Loading Arm Unit and S Loading Arm Unit

A. Install the S Loading Arm Unit onto the chassis.

B. Install the T Loading Arm Unit so that the hole on T Loading Arm Unit is aligned with the hole on S Loading Arm Unit.

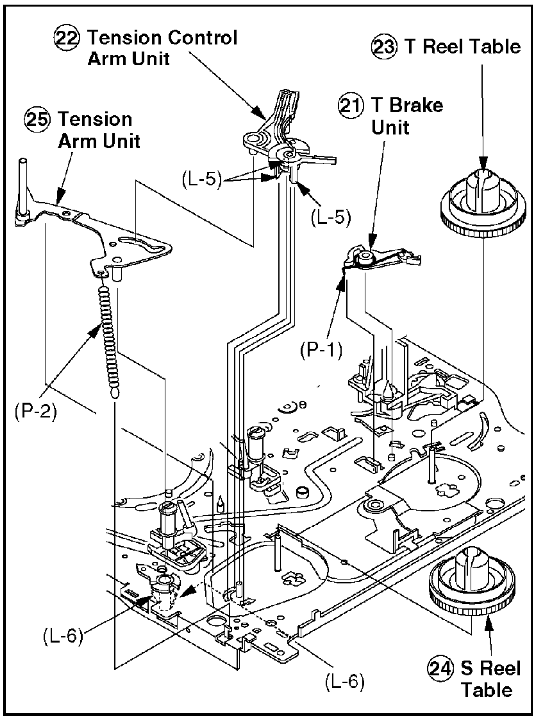
C. Confirm that the holes on the S & T Loading Arm Unit are Through Holes with hole on chassis.

Fig. J7-2



6.2.10. T Brake Unit, Tension Control Arm Unit, T Reel Table, S Reel Table, and Tension Arm Unit

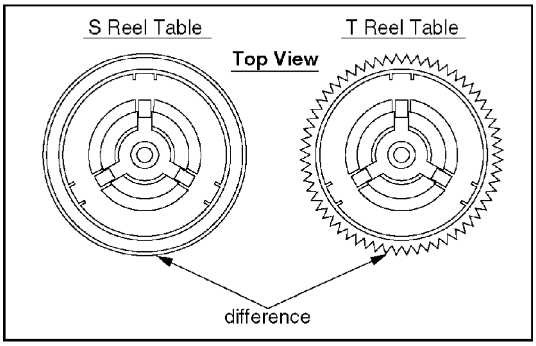
Fig. J8-1



6.2.10.1. Reassembly Notes

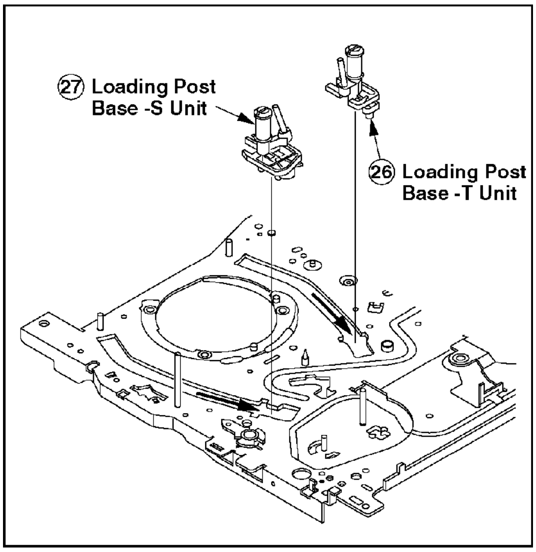
1. How to distinguish between S Reel Table and T Reel Table

Fig. J8-2



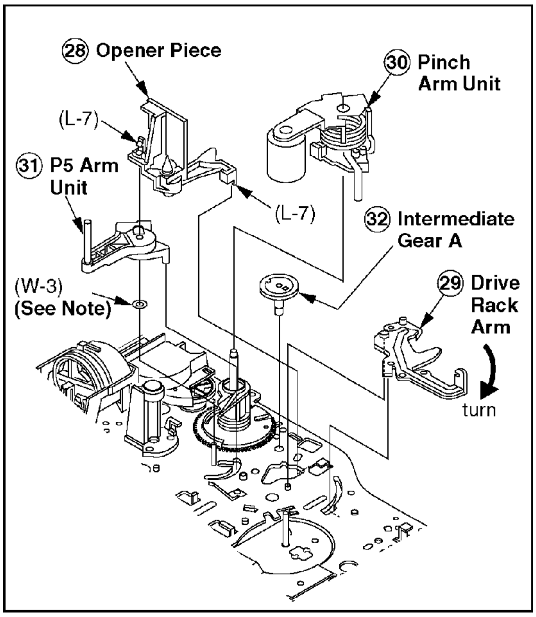
6.2.11. Loading Post Base -T Unit and Loading Post Base -S Unit

Fig. J9



6.2.12. Opener Piece, Drive Rack Arm, Pinch Arm Unit, P5 Arm Unit, and Intermediate Gear A

Fig. J10-1



Note:

In early units, a washer is used. When servicing the washer or the P5 Arm Unit, replace only the P5 Arm Unit with a new one, and remove the washer.

6.2.12.1. Reassembly Notes

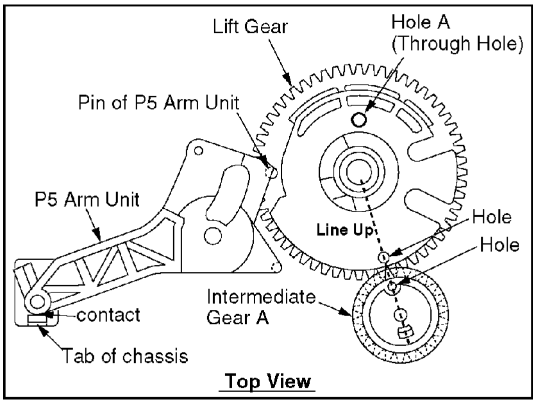
1. Installation/Alignment of Intermediate Gear A, Lift Gear and P5 Arm Unit

A. Rotate the Lift Gear so that Hole A on Lift Gear is a Through Hole with a hole on chassis.

B. Install the Intermediate Gear A so that the hole on Intermediate Gear A is aligned with the hole on Lift Gear.

C. Install the P5 Arm Unit so that it contacts with the tab of chassis.

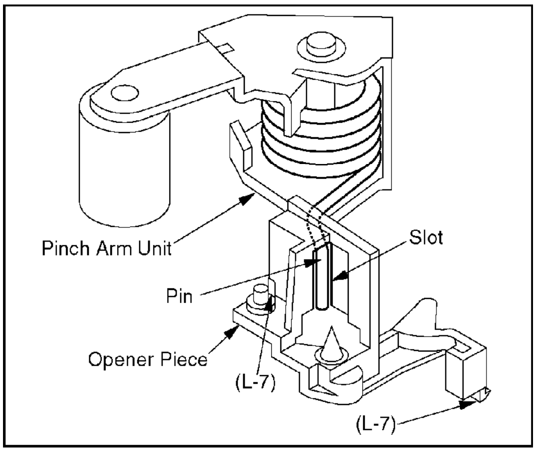
Fig. J10-2



2. Installation of Opener Piece

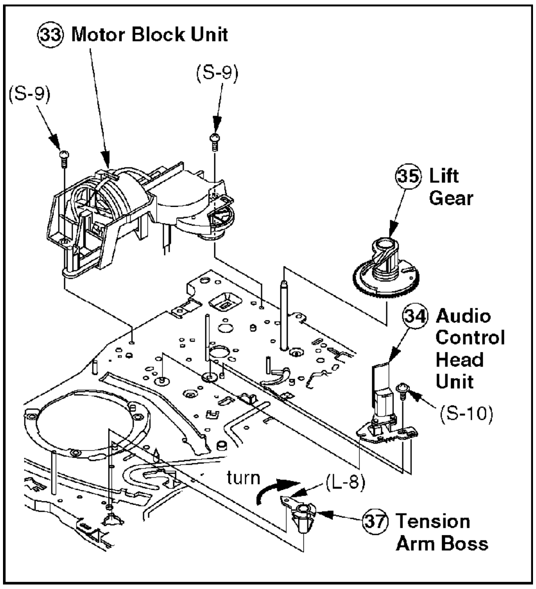
A. Install the Opener Piece so that the slot of the Opener Piece is inserted to the Pin of Pinch Arm Unit

Fig. J10-3



6.2.13. Motor Block Unit, Audio Control Head Unit, Lift Gear and Tension Arm Boss

Fig. J11



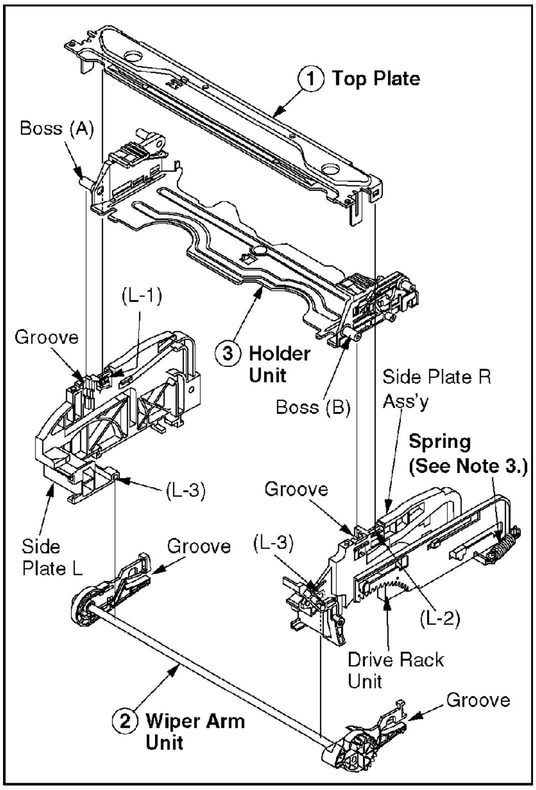
6.3. CASSETTE UP ASSEMBLY SECTION

This chart indicates Step/Location No. of Parts to be serviced and prior steps to gain access items to be serviced when disassembling. When reassembling, perform the step(s) in the reverse order.

Step/Loc. No.	Prior Step(s)	Part	Fig. No.	Remove	Alignment/Adjustment
①	------------	Top Plate	K1-1	(L-1), (L-2)	
②	1	Wiper Arm Unit	K1-1	2(L-3)	Gear Alignment
③	1,2	Holder Unit	K1-1	-	
④	------------	Opener Lever	K2	2(L-4)	
⑤	1,2,3,4	Drive Rack Unit	K2	-	

6.3.1. Top Plate, Wiper Arm Unit, and Holder Unit

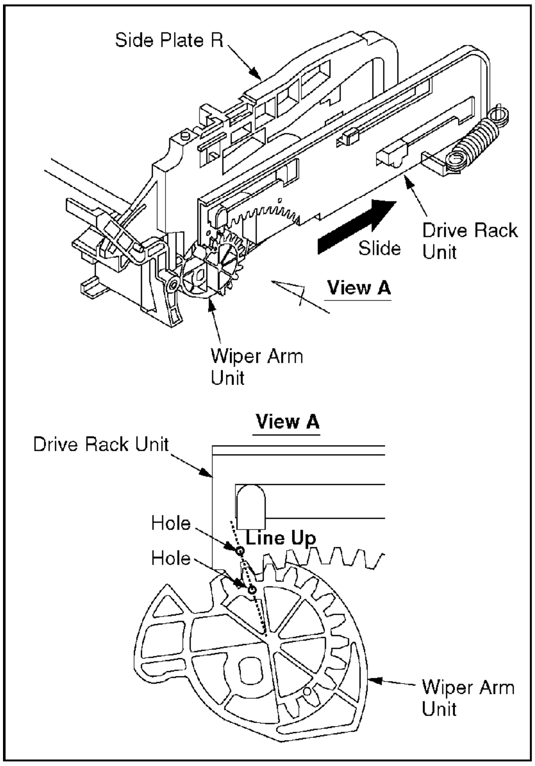
Fig. K1-1



6.3.1.1. Reassembly Notes

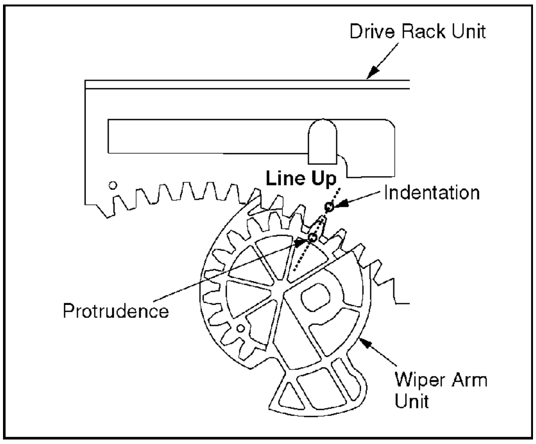
1. **Alignment of Wiper Arm Unit and Drive Rack Unit**
   A. **Slide the Drive Rack Unit to the far right as indicated by the arrow.**
   B. **Install the Wiper Arm Unit so that the hole on the Wiper Arm Unit is aligned with the hole on the Drive Rack Unit.**

Fig. K1-2



2. **Installation of Holder Unit**
   A. **Turn the Wiper Arm Unit so that the grooves on each end are aligned with the each groove on Side Plate L and R.**
   B. **Insert Holder Unit boss (A) and (B) into the grooves as shown in Fig. K1-1.**
   C. **Finally, in the EJECT Position, confirm that the protrudence on the Wiper Arm Unit is aligned with the indentation on the Drive Rack Unit.**

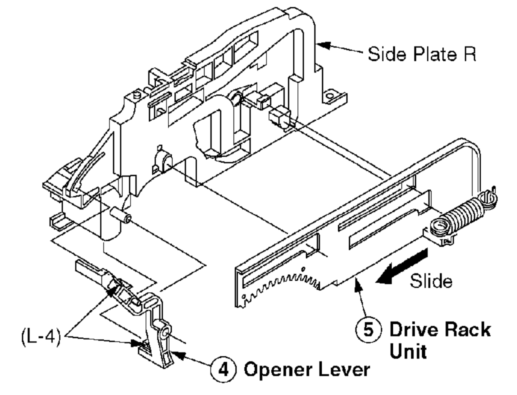
Fig. K1-3



3. **Make sure to hook the spring to the Drive Rack Arm of Mechanism chassis.**

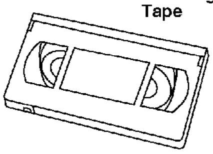
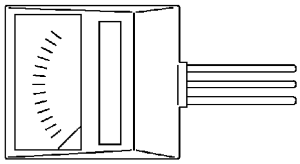
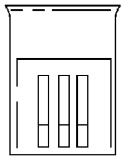
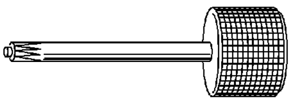
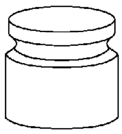
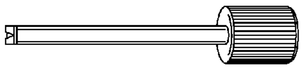
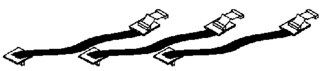
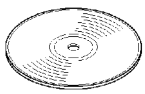
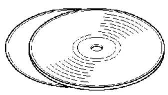
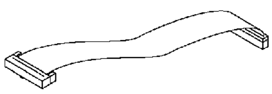
6.3.2. Opener Lever and Drive Rack Unit

Fig. K2



7. ADJUSTMENT PROCEDURES

7.1. SERVICE FIXTURES AND TOOLS

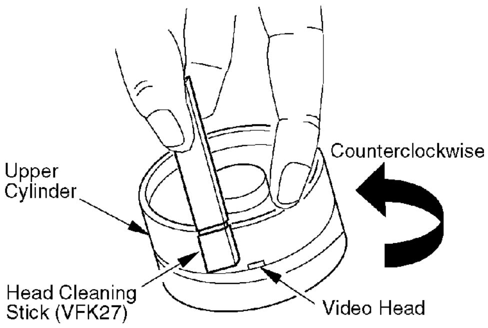
VFMS0003H6 VHS Alignment Tape  Video: Color Bar & Monoscope Audio: 6kHz(MONO)	Back Tension Meter (Made in USA., Purchase Locally) 	VFK27 Head Cleaning Stick 
VFK0330 H-Position Adjustment Driver 	VFKS0081 Grease 	VFK0329 Post Adjustment Driver 
LSUA0034 Extension Cable (3pcs) 	DVDT-S01 DVD Test Disc 	Firmware Disc for DVD Drive Firmware Disc for DVD Decoder  Not supplied
Connector Cable (IDE Cable)  Not supplied (Purchase locally)		

7.2. MECHANICAL ADJUSTMENT

7.2.1. CLEANING PROCEDURE FOR THE UPPER CYLINDER UNIT

1. While slowly turning the Upper Cylinder Unit counterclockwise by hand, gently rub the Video Heads with a Head Cleaning Stick (VFK27) moistened with Ethanol.
   When using a Cleaning Cassette, make sure to use "DRY" type only and be aware that excessive use can shorten head life.

Fig. M1



Note:

1. Do not rub vertically or apply excess pressure to the Video Heads. Do not turn the Upper Cylinder Unit clockwise while cleaning.
2. After cleaning, use a Dry Head Cleaning Stick (VFK27) to remove any Ethanol remaining on the cylinder tape path. Otherwise, tape damage will occur.

7.2.2. ADJUSTMENT PROCEDURES

7.2.2.1. BACK TENSION CONFIRMATION

Purpose:

To fine adjust the Back Tension so that the tape runs smoothly with a constant tension.

Symptom of Misadjustment:

1) If the tape tension is less than the specified value, the tape cannot come into proper contact with the Video Heads, resulting in poor picture playback.
2) If the tape tension is too high, the tape will soon be damaged.

Equipment Required:

Back Tension Meter (Made in U.S.A., Purchase Locally)
VHS Cassette Tape (120-Minute Tape)

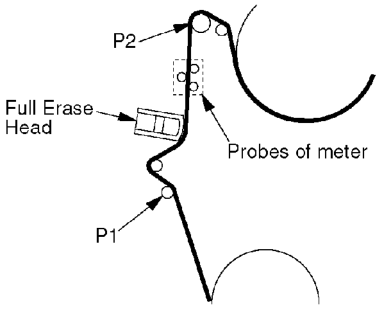
Specification:

22.4 gf±2.5 gf

(0.220 N±0.025 N)

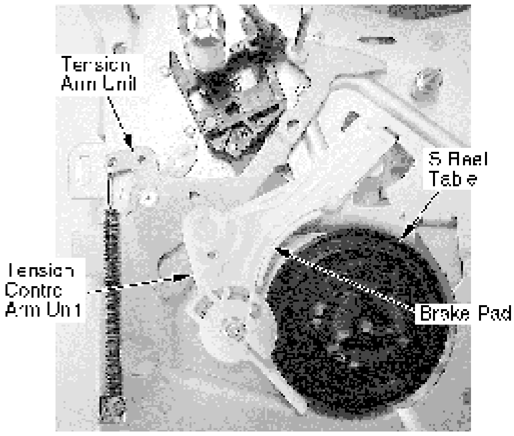
1. Play back a T120 cassette tape from the beginning for approx. 10 to 20 seconds to stabilize tape movement.
2. Insert a Tension Meter into tape path and measure the back tension.

Fig. M2-1



3. If the reading is out of specification, make sure that there is no dust or foreign material between the Brake Pad of Tension Control Arm Unit and the S Reel Table.
   After cleaning, the reading of tension measurement is still out of specification, replace the Tension Arm Unit and the Tension Control Arm Unit.

Fig. M2-2



Note:

1. Be sure that the three probes of the meter are all in solid contact with the tape, but not touching any other parts of the mechanism.
2. It is recommended that measurements should be repeated at least three (3) times because the tension meter is very sensitive to external vibrations.

7.2.2.2. TAPE INTERCHANGEABILITY ADJUSTMENT

Note:

To perform these adjustment/confirmation procedures, set the tracking to the neutral position.

Equipment Required:

Dual Trace Oscilloscope
VHS Alignment Tape (VFMS0003H6)
Post Adjustment Driver (VFK0329)
H-Position Adjustment Driver (VFK0330)

7.2.2.2.1. ENVELOPE OUTPUT ADJUSTMENT

The height of the P2 and P3 Posts replacement part is preadjust at the factory.

Purpose:

To achieve a satisfactory picture and secure precise tracking.

Symptom of Misadjustment:

If the envelope is output poorly, much noise will appear in the picture. Then the tracking will lose precision and the playback picture will be distorted by any slight variation of the tracking control circuit.

Equipment Required:

Post Adjustment Driver (VFK0329)

1. **Place a jumper between TP6003 and +5 V(TP6009) on the TV/VCR Main C.B.A. to defeat Auto Tracking.**
2. **Eject the tape and insert it again to access the Neutral Tracking position.**
3. **Play back the alignment tape.**
4. **Connect the oscilloscope to TP3002 on the Video Signal Process Section of the TV/VCR Main C.B.A. Use TP6205 as a trigger.**
5. **Confirm that the RF envelope is flat enough (V1/V-max. is 0.7 or more). If not, with Post Adjustment Driver, adjust P2 and P3 post height so that the envelope waveform becomes as flat (V1/V-max. is 0.7 or more) as possible (Noenvelope drop). If the envelope drop appears on the left-half of the waveform, adjust P2 post height. If the envelope drop appears on the right-half of the waveform, adjust P3 post height.**
   CAUTION:

Overtightening P2 and P3 posts may cause the threads to strip.

Note:

It will be possible to confirm Step 5 according to following steps.

1. **Press the Tracking Control Up or Down button on remote control. Make sure that the envelope waveform remains flat. If not, readjust P2 and/or P3 post heights.**

Fig. M3-1

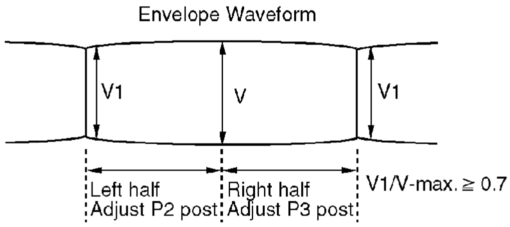
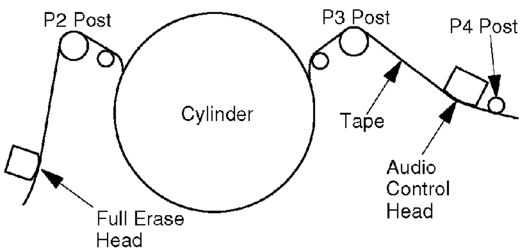
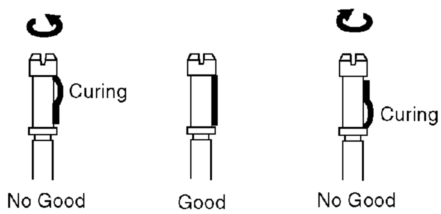


Fig. M3-2



6. **After adjustment, confirm that the tape travels without curling at P2 and P3 posts.**

Fig. M3-3



7. **Remove the jumper after completing the adjustment procedure.**

7.2.2.2.2. AUDIO CONTROL HEAD TILT ADJUSTMENT

Purpose:

To confirm that the tape runs smoothly. In particular, confirm that the tape properly picks up the Audio Signal at the upper part of the head and the Control Signal at the lower part of the head.

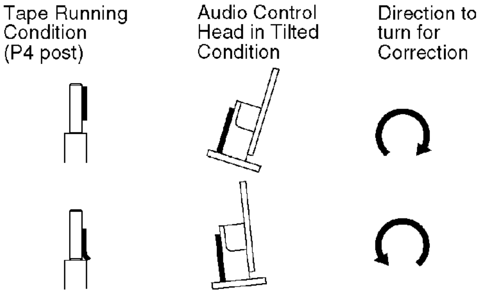
Symptom of Misadjustment:

If the tilt of the Audio Control Head is poorly adjusted, the tape

will eventually be damaged. An intermittent Blue screen may be seen in Playback.

1. Play back a T120 cassette tape and check that the tape travels smoothly between the upper and lower guides of the P4 post.
2. If necessary, adjust Black Screw (B) clockwise until the tape begins to curl at the lower edge of the P4 post. Then adjust the screw counterclockwise until the curling is eliminated.

Fig. M4



7.2.2.2.3. AUDIO CONTROL HEAD HEIGHT ADJUSTMENT

The height of the Audio Control Head replacement part is preset at the factory.

Purpose:

To be sure the tape runs properly along the Control Head.

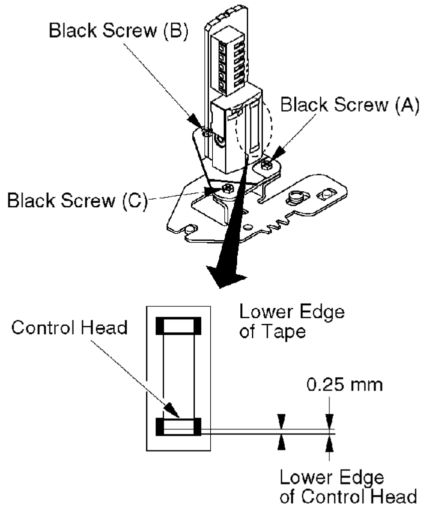
Symptom of Misadjustment:

If the control signal is not properly picked up, Servo Operation cannot be achieved. A Blue screen will be seen in Playback.

This confirmation is required when the Audio Control Head is replaced.

1. Play back a T120 cassette tape and check that the lower edge of the tape runs approximately 0.25 mm above the lower edge of the Audio Control Head.
2. If necessary, adjust Black Screws (A) and (B) clockwise to lower the tape or counterclockwise to raise.

Fig. M5



7.2.2.2.4. AUDIO CONTROL HEAD AZIMUTH ADJUSTMENT

Purpose:

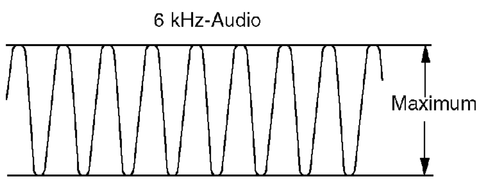
To adjust the position and height of the Audio Control Head so that it meets the tape tracks properly.

Symptom of Misadjustment:

If the position of the Audio Control Head is not properly adjusted, the Audio S/N Ratio is poor.

1. **Connect the oscilloscope to the TP4002 on the TV/VCR Main C.B.A.**
2. **Play back the 6 kHz Monaural Audio portion of the alignment tape.**
3. **Adjust Black Screw (C) on the Audio Control Head base so that the output level is at maximum.**

Fig. M6



4. **Confirm the height of the Audio Control Head is proper. If not, readjust Black Screws (A) and (B).**

7.2.2.2.5. AUDIO CONTROL HEAD HORIZONTAL POSITION ADJUSTMENT

Purpose:

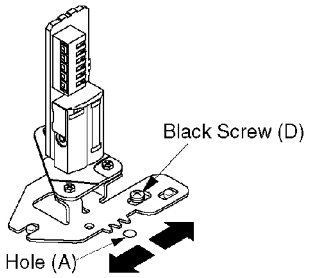
To adjust the Horizontal Position of the Audio Control Head.

Symptom of Misadjustment:

If the Horizontal Position of the Audio Control Head is not properly adjusted, a maximum envelope cannot be obtained at the Neutral Position of the Tracking Control Circuit.

1. Place a jumper between TP6003 and +5 V(TP6009) on the TV/VCR Main C.B.A. to defeat Auto Tracking.
2. Eject the tape and insert it again to access the Neutral Tracking position.
3. Play back the alignment tape.
4. Connect the oscilloscope to TP3002 on the Video Signal Process Section of the TV/VCR Main C.B.A. Use TP6205 as a trigger.
5. Loosen the Black Screw (D) and tighten it slightly. Set the H-Position Adjustment Driver into the Hole (A). Then slowly turn the fixture either clockwise or counterclockwise so that the envelope is at maximum.

Fig. M7



6. Tighten Black Screw (D).
7. Remove the jumper between TP6003 and +5 V(TP6009).

Note:

Old type of H-Position Adjustment Driver (VFK0136) can be used for this adjustment.

7.3. ELECTRICAL ADJUSTMENT

NOTE:

Following Adjustments have been preadjusted at factory and are not required.

- Purity Adjustment
- Static Central Convergence Adjustment
- Dynamic Convergence Adjustment

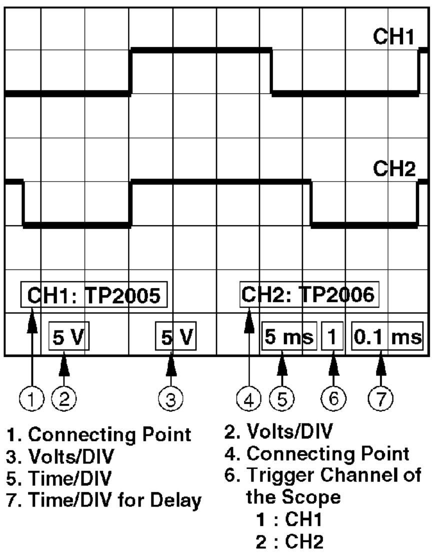
7.3.1. TEST EQUIPMENT

To do all of these electrical adjustments, the following equipment is required.

1. **Dual-Trace Oscilloscope**
   Voltage Range: 0.001 V to 50 V/Div.
   Frequency Range: DC to 50 MHz
   Probes: 10:1, 1:1
2. **NTSC Video Pattern Generator**
3. **DVM (Digital Volt Meter)**
4. **MTS/SAP Signal Generator**
   (TV Multi-Channel Sound Modulator (U.S.A.))
5. **Plastic Tip Driver and Non-Metal Driver**
6. **Isolation Transformer (Variable)**
7. **VHS Alignment Tape (VFMS0003H6)**
8. **Degaussing Coil**
9. **White Pattern Generator**
10. **Audio Generator**
11. **DVD Test Disc**

7.3.2. HOW TO READ THE ADJUSTMENT PROCEDURES

Fig. E1



7.3.3. STEREO/SAP SEPARATION ADJUSTMENT

Note:

Remove the DVD unit before performing this adjustment.

Purpose:

To separate the L and R Channels of Stereo Signal.

Symptom of Misadjustment:

The L and R Channels of Stereo Signal will not be separated properly resulting in no stereophonic effect.

Test Point :

TP9001 (Audio C.B.A.)

Adjustment :

R9001, R9008 (Audio C.B.A.)

Specification :

minimum level

INPUT :

Antenna Input Terminal
MTS (ONLY L CH)
300 Hz±5 Hz, 3 kHz±5 Hz
14 % or 7 % Modulating

Mode :

STEREO audio (TV)

Equipment :

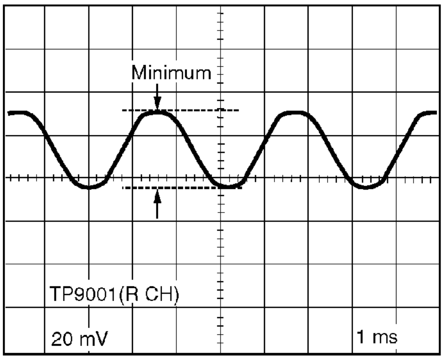
Oscilloscope,
MTS/SAP Signal Generator

1. Set to TV mode, and then set to STEREO audio.
2. Connect the RF OUTPUT of the MTS/SAP Signal Generator to the Antenna Input Terminal.
   Then, set the MTS/SAP Signal Generator as follows.
   MTS (ONLY L CH)
   300 Hz±5 Hz
   14 % or 7 % Modulating
3. Connect the Oscilloscope to TP9001 on the Audio C.B.A.
4. Adjust R9001 (SEP (L)) on the Audio C.B.A. so that the signal level of TP9001 is minimum.
5. Set the MTS/SAP Signal Generator as follows.
   MTS (ONLY L CH)
   3 kHz±5 Hz

14 % or 7 % Modulating

6. Adjust R9008 (SEP (H)) on the Audio C.B.A. so that the signal level of TP9001 is minimum.

Fig. E2



7.3.4. SEPARATION ADJUSTMENT

Note:

Be sure to perform this adjustment after STEREO/SAP SEPARATION ADJUSTMENT are completed.

Purpose:

To separate the L and R Channels of Stereo Signal.

Symptom of Misadjustment:

The L and R Channels of Stereo Signal will not be separated properly resulting in no stereophonic effect.

Test Point :

TP9001 or TP4202 (Audio C.B.A.)

Adjustment :

R9003 (Audio C.B.A.)

Specification :

minimum level

INPUT :

Antenna Input Terminal
MTS (ONLY L CH)
300 Hz±5 Hz
14 % or 7 % Modulating

Mode :

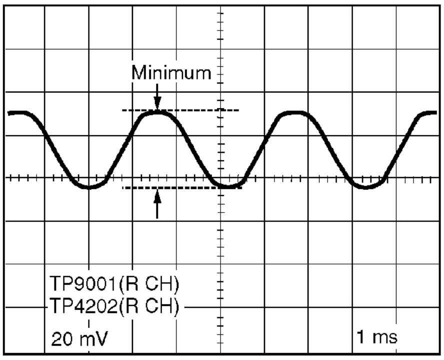
STEREO audio (TV)

Equipment :

Oscilloscope, MTS/SAP Signal Generator

1. **Connect the RF OUTPUT of the MTS/SAP Signal Generator to the Antenna Input Terminal.**
2. **Connect the Oscilloscope to TP9001 or TP4202 on the Audio C.B.A.**
3. **Set to TV mode, and then set to STEREO audio.**
4. **Adjust R9003 on the Audio C.B.A. so that the signal level is minimum.**

Fig. E3



7.3.5. FM VCO ADJUSTMENT

Note:

Remove the DVD unit before performing this adjustment.

Purpose:

To set VCO free run frequency.

Symptom of Misadjustment:

Even when stereophony is received, only monaural sound will be output.

Test Point :

Pin 31 of P4205, TP9201 (Audio C.B.A.)

Adjustment :

R9206 (Audio C.B.A.)

Specification :

38.0 kHz±50 Hz

Input :

Mode :

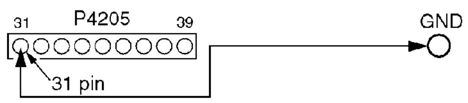
STEREO audio (FM Radio)

Equipment :

Frequency Counter

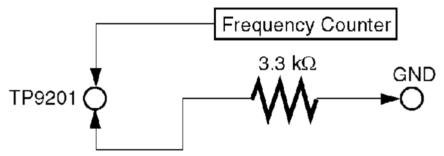
1. Connect Pin 31 of P4205 on Audio C.B.A. to GND.

Fig. E4-1



2. Connect TP9201 on Audio C.B.A. to GND through a resistor (3.3 kΩ). Then, connect Frequency Counter to TP9201.

Fig. E4-2



3. Adjust R9206 (FM VCO) so that the frequency is 38.0 kHz±50 Hz.

7.3.6. DVD LUMINANCE ADJUSTMENT

Purpose :

To set the optimum luminance level for DVD.

Symptom of Misadjustment :

The picture is too bright or too dark.

Test Point :

TP8201 (DVD DECODER C.B.A.)

Adjustment :

R8299 (DVD DECODER C.B.A.)

Specification :

1.0 V[P-P]±0.05 V[P-P]

Input :

Mode :

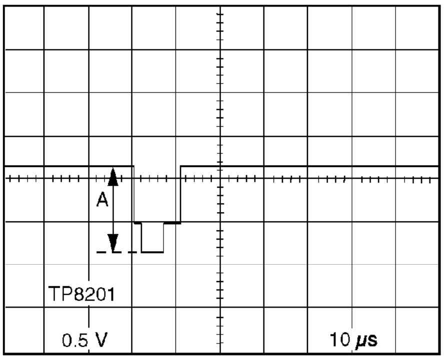
DVD PLAY

Equipment :

Oscilloscope, DVD Test Disc

1. Playback 100% Flat Field on the DVD Test Disc in DVD PLAY Mode.
2. Connect the Oscilloscope to TP8201 on the DVD DECODER C.B.A. and GND (TP8203 on the DVD DECODER C.B.A.).
3. Adjust R8299 on the DVD DECODER C.B.A. so that the level A becomes 1.0 V[P-P]±0.05 V[P-P].

Fig. E5



7.3.7. EVR (Electronic Variable Register) ADJUSTMENT WITH THE REMOTE CONTROL

This unit has electronic technology using I2C Bus concept.
The following control functions are adjusted by using "On Screen Displays" and the remote control instead of adjusting mechanical controls (VR).

Control functions	※1 Address	Range	Default
SUB COLOR	00	C0 - FF, 00 - 3F	20
SUB TINT	01	E0 - FF, 00 - 1F	00
SUB BRIGHT	02	C0 - FF, 00 - 3F	F0
CONTRAST	03	C1 - FF, 00	00
SUB SHARPNESS	04	E0 - FF, 00 - 1F	E2
R CUT -OFF	05	00 - 7F	1E
G CUT -OFF	06	00 - FD	3C
B CUT -OFF	07	00 - FD	3C
G DRIVE	08	00 - 7F	40
B DRIVE	09	00 - 7F	40
SUB CONTRAST	0A	00 - 0F	06
H-CENTER	0B	00 - 0F	08
V SIZE	0D	00 - 7F	40
V POSITION	0E	00 - 1F	00
PG SHIFTER	15	00 - FD	80

Bold-faced letters → Control functions which need to be adjusted.

Note:

※1 Address is not displayed on the TV screen.
Other Addresses except above are not used.

7.3.8. EVR ADJUSTMENT ITEM

The following Items need to be adjusted for EVR adjustment.

- PG SHIFTER ADJUSTMENT

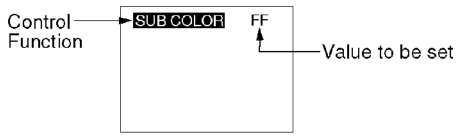
- SUB CONTRAST ADJUSTMENT

- FOCUS, SCREEN, CUT OFF, DRIVE ADJUSTMENT
- SUB COLOR/SUB TINT ADJUSTMENT
- FOCUS ADJUSTMENT
- DEFLECTION DISTORTION CORRECTION ADJUSTMENT
- WHITE BALANCE ADJUSTMENT
- SUB BRIGHTNESS ADJUSTMENT

7.3.9. HOW TO ENTER EVR ADJUSTMENT MODE

Press and hold STOP/EJECT, PLAY/REPEAT and VOL- buttons of VCR operation panel on the unit together over 5 seconds with no cassette inserted.
The adjustment overlay will appear to Enter EVR adjustment mode.

Fig. E6-1



7.3.9.1. How to adjust:

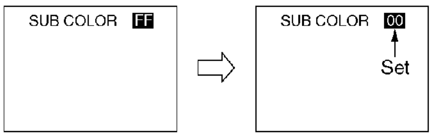
1. **Press UP/DOWN ▲ ▼ key on the remote control to select control function to be adjusted.**

   Important Note:

   Make a note of the original value of the controls before modifying in case the wrong control is adjusted.

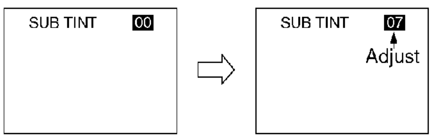
2. **Press RIGHT/LEFT ◀ ▶ key on the remote control so that the shaded area moves to the value.**

Fig. E6-2



3. **Press UP/DOWN ▲ ▼ key on the remote control to adjust the value of the selected control.**

Fig. E6-3

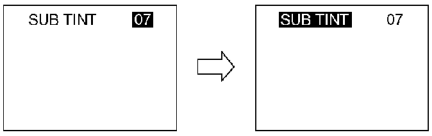


Note:

You can select a desired channel by using the numbered keys on the remote control in EVR adjustment mode.

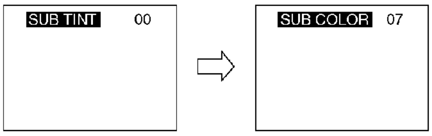
4. Press RIGHT/LEFT ◀ ▶ key on the remote control so that the shaded area moves to the control function.

Fig. E6-4



5. Press UP/DOWN ▲ ▼ key on the remote control to select a control function for the next adjustment if necessary.

Fig. E6-5



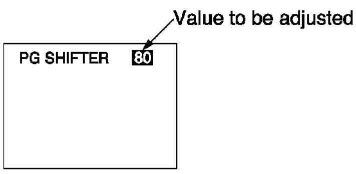
7.3.9.2. How to release from EVR Adjustment Mode:

Press and hold STOP/EJECT, PLAY/REPEAT and VOL- buttons of VCR operation panel on the unit together over 5 seconds again or press the POWER button OFF to release EVR adjustment mode. The adjusted value will be written to Memory IC(IC6004).

7.3.9.3. HOW TO ENTER EVR PG SHIFTER ADJUSTMENT MODE

1. Enter EVR adjustment mode.
2. Insert the VHS Alignment Tape and playback in SP mode.
   The adjustment overlay will appear.

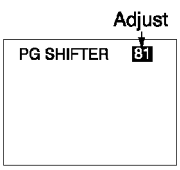
Fig. E6-6



7.3.9.3.1. How to adjust:

Press UP/DOWN ▲ ▼ key on the remote control to adjust the value.

Fig. E6-7



7.3.10. HOW TO ENTER SERVICE MODE

1. Set the unit to TV Mode.

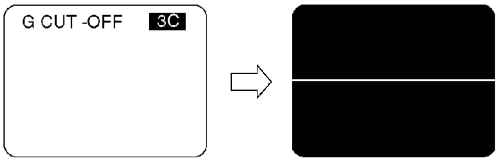
2. Enter EVR adjustment mode.

3. Press DISPLAY key on the remote control for collapse scan.

Note:

Before pressing DISPLAY key on the remote control for collapse scan, select the desired control function and move the shaded area to the value for adjustments you will proceed.

Fig. E6-8



7.3.10.1. How to release from Service Mode:

Press DISPLAY key again on the remote control.

7.3.11. PG SHIFTER ADJUSTMENT

Purpose:

Determine the Video Head Switching Point during Playback.

Symptom of Misadjustment:

May cause Head Switching Noise and/or Vertical Jitter.

Test Point :

TP3001 (Main C.B.A.),
TP6205 (Main C.B.A.)

Adjustment :

PG SHIFTER (EVR)

Specification :

T = 6 H±1 H (0.38 ms±0.06 ms)

Input :

Mode :

SP Playback

Equipment :

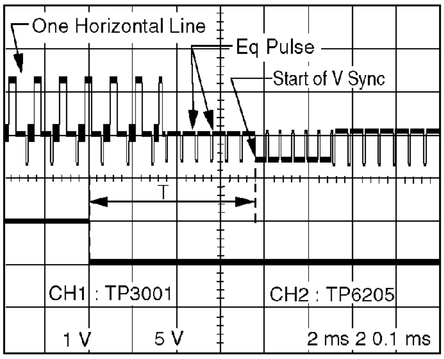
Oscilloscope,
VHS Alignment Tape (VFMS0003H6)

1. Insert the VHS Alignment Tape and playback in SP mode.

2. Connect the channel-1 scope probe to TP3001 and the channel-2 scope probe to TP6205. Used TP6205 as a trigger.

3. Select PG SHIFTER in EVR adjustment mode and adjust value so that the trailing edge of the head switching pulse is placed 6 H±1 H (0.38 ms±0.06 ms) before the start of the vertical sync pulse.

Fig. E7



7.3.12. SUB CONTRAST ADJUSTMENT

Purpose:

To set the optimum sub contrast level.

Symptom of Misadjustment:

The picture is too dark or too light.

Test Point :

TP49 (CRT C.B.A.)

Adjustment :

SUB CONTRAST (EVR),

Specification :

2.0 V[p-p]±0.1 V[p-p]

Input :

Video Input Jack,

Crosshatch Pattern Signal 1 V[p-p] (75 Ω terminated)

Mode :

STOP

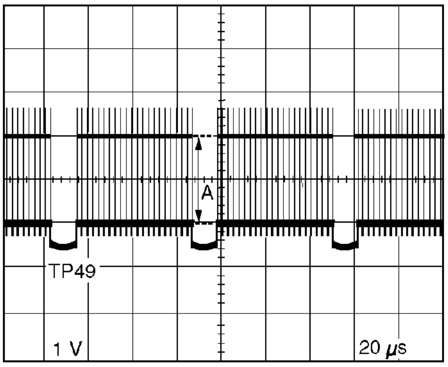
Equipment :

Oscilloscope,

NTSC Video Pattern Generator

1. Supply a Crosshatch Pattern Signal to the Video Input Jack.
2. Connect the Oscilloscope to TP49 on the CRT C.B.A.
   (Use TP47 for GND.)
3. Select SUB BRIGHT in EVR adjustment mode. Then, after making a note of the original value, adjust to the (C0).
4. Select SUB CONTRAST in EVR adjustment mode and adjust so that the level A is 2.0 V[p-p]±0.1 V[p-p].
5. Select SUB BRIGHT in EVR adjustment mode and reset to the original value.

Fig. E8



7.3.13. FOCUS, SCREEN, CUT OFF, DRIVE ADJUSTMENT

Purpose:

To set the optimum Screen.

Symptom of Misadjustment:

The picture is will be an improper screen color mix.

Test Point :

TP50 (CRT C.B.A.)

Adjustment :

FOCUS CONTROL
(Flyback Transformer),
SCREEN CONTROL (Flyback Transformer),
SUB BRIGHT (EVR),
G DRIVE (EVR),
B DRIVE (EVR),
R CUT-OFF (EVR),
G CUT-OFF (EVR),

B CUT-OFF (EVR)

Specification :

Refer to descriptions below.

Input :

Video Input Jack,
Monoscope Pattern Signal

Mode :

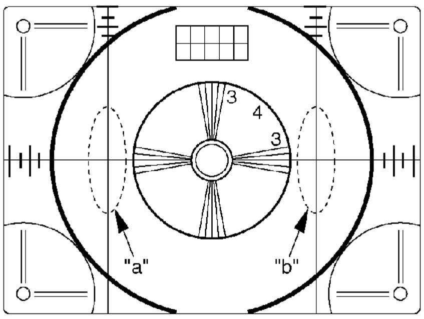
STOP

Equipment :

Oscilloscope,
NTSC Video Pattern Generator

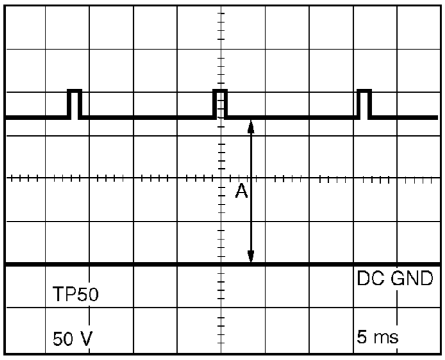
1. Supply a Monoscope Pattern Signal to the Video Input Jack.
2. Connect the Oscilloscope to TP50 on the CRT C.B.A.
   (Use TP47 for GND.)
3. Select SUB BRIGHT and move the shaded area to the value in EVR adjustment mode.
4. Adjust the FOCUS CONTROL on the Flyback Transformer so that the "a" and "b" are the sharpest.

Fig. E9-1



5. Turn the SCREEN CONTROL on the Flyback Transformer fully counterclockwise.
6. Press DISPLAY key on the remote control for collapse scan.
   (Refer to "HOW TO ENTER SERVICE MODE.")
7. Adjust SUB BRIGHT in EVR adjustment mode so that the level A is 175 VDC±5 VDC.

Fig. E9-2



8. Turn the SCREEN CONTROL on the Flyback Transformer clockwise carefully and stop at the point where any color is first observed.
9. In EVR adjustment mode, select the two colors not observed in step 8 from the following control functions (R CUT-OFF, G CUT-OFF, B CUT-OFF) and adjust so that the horizontal line becomes white.
   For example, if the horizontal line appeared red in step 8, select and adjust the B CUT-OFF and G CUT-OFF. (See NOTE)
10. Press DISPLAY key on the remote control again to return for full frame scan.
11. Select SUB BRIGHT in EVR adjustment mode and adjust so that the picture has adequate brightness.
12. Select G DRIVE and B DRIVE in EVR adjustment mode and adjust so that the entire screen is white.

Note:

Before pressing DISPLAY key on the remote control for collapse scan, select the desired control function and move the shaded area to the value.

7.3.14. SUB COLOR/SUB TINT ADJUSTMENT

Purpose :

To set the standard color phase.

Symptom of Misadjustment :

Color phase will be shifted.

Test Point :

TP49 (CRT C.B.A.)

Adjustment :

SUB COLOR (EVR),
SUB TINT (EVR),

Specification :

Refer to descriptions below.

Input :

Video Input Jack,
Rainbow Color Bar

Mode :

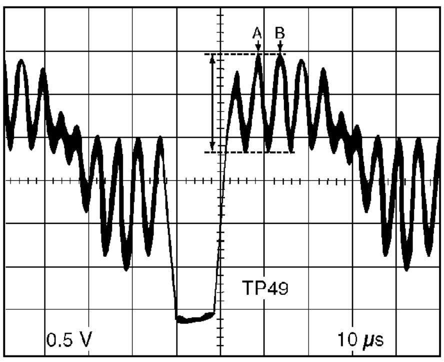
STOP

Equipment :

Oscilloscope,
NTSC Video Pattern Generator

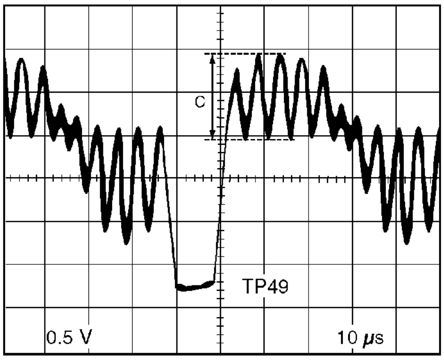
1. **Supply the Rainbow Color Bar signal to Video Input Jack.**
2. **Connect the Oscilloscope to TP49 on the CRT C.B.A.**
3. **Select SUB BRIGHT in EVR adjustment mode. Then, after making a note of original value, adjust to the (C0).**
4. **Select SUB TINT in EVR adjustment mode and adjust so that level A and B should be equal in amplitude.**

Fig. E10-1



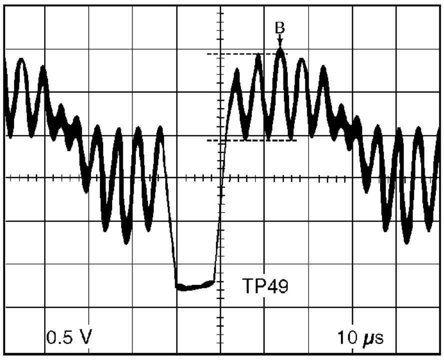
5. **Select SUB COLOR in EVR adjustment mode and adjust which higher level that level C is 1.0 V[p-p]±0.15 V[p-p].**

Fig. E10-2



6. Select SUB TINT in EVR adjustment mode and increase level B 1 clicks above the same level.

Fig. E10-3



7. Select SUB BRIGHT in EVR adjustment mode and reset to the original value.

7.3.15. FOCUS ADJUSTMENT

Note:

Be sure to perform this adjustment after SUB CONTRAST ADJUSTMENT and SUB BRIGHTNESS ADJUSTMENT are completed.

Purpose:

To set the optimum Focus.

Symptom of Misadjustment:

The picture is out of Focus.

Test Point :

TP551, TP552 (TV Main C.B.A.)

Adjustment :

FOCUS CONTROL
(Flyback Transformer),
SUB BRIGHT (EVR)

Specification :

Refer to descriptions below.

Input :

Video Input Jack,
Monoscope Pattern Signal

Mode :

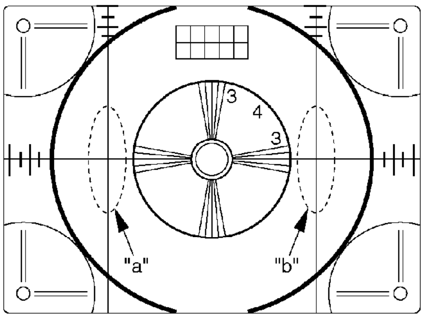
STOP

Equipment :

DVM,
NTSC Video Pattern Generator

1. Turn off the set and connect DVM between TP551 and TP552 on the TV Main C.B.A.
2. Turn on the set.
   Enter EVR adjustment mode refer to "HOW TO ENTER EVR ADJUSTMENT MODE."
3. Supply a Monoscope Pattern Signal to the Video Input Jack.
4. Select SUB BRIGHT in EVR adjustment mode and adjust so that the voltage is 17.0 VDC±1.0 VDC.
5. Adjust the FOCUS CONTROL on the Flyback Transformer so that the "a" and "b" is the sharpest.

Fig. E11



7.3.16. DEFLECTION DISTORTION CORRECTION ADJUSTMENT

Purpose :

To set the optimum picture.

Symptom of Misadjustment :

The picture is distortion.

Test Point :

Adjustment :

V POSITION (EVR),
V SIZE (EVR),
H-CENTER (EVR),
R763 (TV Main C.B.A.),
R753 (TV Main C.B.A.),
R766 (TV Main C.B.A.)

Specification :

Refer to descriptions below.

Input :

Video Input Jack,
Crosshatch Pattern Signal,
Monoscope Pattern Signal

Mode :

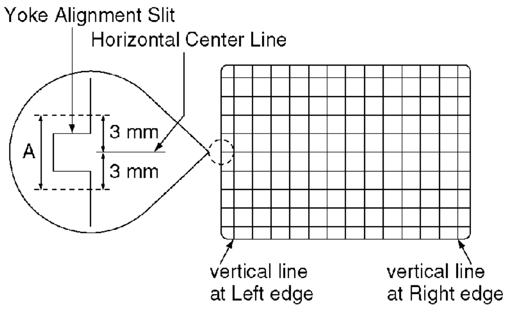
STOP

Equipment :

NTSC Video Pattern Generator

1. **Supply a Crosshatch Pattern Signal to the Video Input Jack.**
2. **Confirm that the Horizontal Center Line is within the limits of A.**

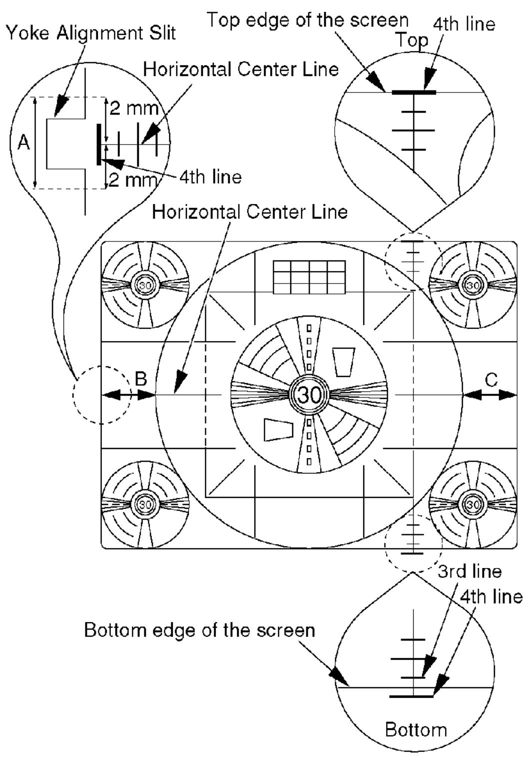
Fig. E12-1



3. **Adjust R763 so that vertical lines should be almost straight.**
4. **Adjust R753 so that vertical lines at Left edge and Right edge should be almost straight.**
5. **Supply a Monoscope Pattern Signal to the Video Input Jack.**

6. Select V POSITION in EVR adjustment mode and adjust Horizontal Center Line is within the limits of A.

Fig. E12-2



7. Select V SIZE in EVR adjustment mode and adjust so that the top 4th line is just in view.

8. Confirm that the bottom 3rd line is in view and that the bottom 4th line is out of view.
   If the line are not positioned correctly, repeat the above step 6 and 7 until the line is positioned correctly.

9. Select H-CENTER in EVR adjustment menu and adjust so that B is approximately equal to width C.

10. Adjust R766 so that the left 4th line is just in view.

7.3.17. WHITE BALANCE ADJUSTMENT

Purpose:

To set the standard white level for each color temperature.

Symptom of Misadjustment :

White becomes bluish or reddish.

Test Point :

TP50 (CRT C.B.A)

Adjustment :

FOCUS CONTROL
(Flyback Transformer),
SCREEN CONTROL (Flyback Transformer),
SUB BRIGHT (EVR),
G DRIVE (EVR),
B DRIVE (EVR),
R CUT-OFF (EVR),
G CUT-OFF (EVR),
B CUT-OFF (EVR)

Specification :

Refer to descriptions below.

Input :

Video Input Jack,
Monoscope Pattern Signal,
White Pattern Signal

Mode :

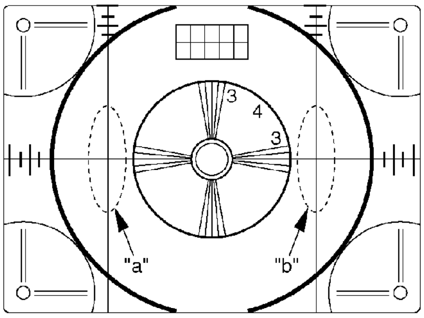
STOP

Equipment :

NTSC Video Pattern Generator,
White Pattern Generator,
Oscilloscope

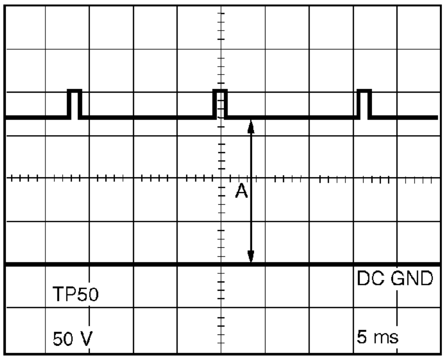
1. **Supply a Monoscope Pattern Signal to the Video Input Jack.**
2. **Connect the Oscilloscope to TP50 on the CRT C.B.A.**
   (Use TP47 for GND.)
3. **Select SUB BRIGHT and move the shaded area to the value in EVR adjustment mode.**
4. **Adjust the FOCUS CONTROL on the Flyback Transformer so that the "a" and "b" are the sharpest.**

Fig. E13-1



5. Turn the SCREEN CONTROL on Flyback Transformer fully counterclockwise.
6. Press DISPLAY key on the remote control for collapse scan. (Refer to "HOW TO ENTER SERVICE MODE.")
7. Adjust SUB BRIGHT in EVR adjustment mode so that the level A is 175 VDC±5 VDC.

Fig. E13-2



8. Turn the SCREEN CONTROL on the Flyback Transformer clockwise carefully and stop at the point where red or blue is first observed.
9. In EVR adjustment mode, select the two colors not observed in step 8 from the following control functions (R CUT-OFF, G CUT-OFF, B CUT-OFF) and adjust so that the horizontal line becomes white.
   For example, if the horizontal line appeared red in step 8, select and adjust the B CUT-OFF and G CUT-OFF. (See NOTE)
10. Supply a White Pattern Signal to the Video Input Jack.
11. Press DISPLAY key on the remote control again to return for full frame scan.
12. Select G DRIVE and B DRIVE in EVR adjustment mode and

adjust so that the entire screen is white.

13. Confirm that the screen is tracking the White Pattern properly. If NG, repeat the above steps 8, 9 and 12 until the screen is properly tracking the White Pattern.

14. Select SUB BRIGHT in EVR adjustment mode and adjust correctly.

Note:

Before pressing DISPLAY key on the remote control for collapse scan, select the desired control function and move the shaded area to the value.

7.3.18. SUB BRIGHTNESS ADJUSTMENT

Note:

Perform this adjustment in a darkened room.

Purpose :

To set the optimum brightness level.

Symptom of Misadjustment :

The picture is too white or too black.

Test Point :

Adjustment :

SUB BRIGHT (EVR),

Specification :

Refer to descriptions below.

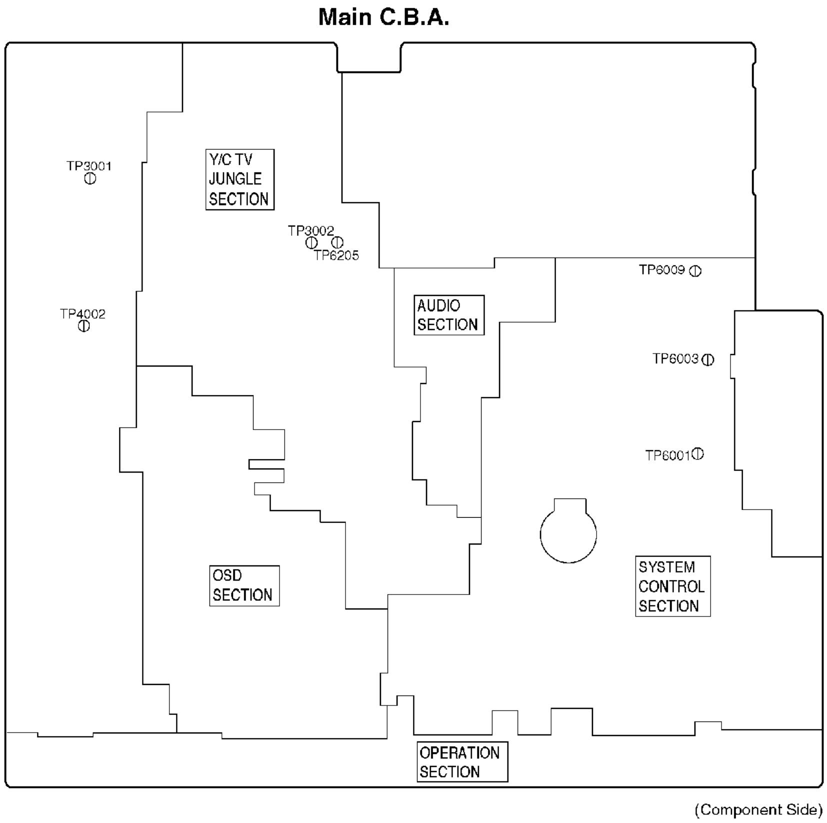
Input :

Mode :

STOP

1. Do not input any signal to the unit.
2. Set INPUT SELECT item to LINE in SET UP TV menu to display black screen.
3. Select SUB BRIGHT in EVR adjustment mode, and adjust so that the black screen starts to turn gray (lighting only).

7.4. TEST POINTS AND CONTROL LOCATION

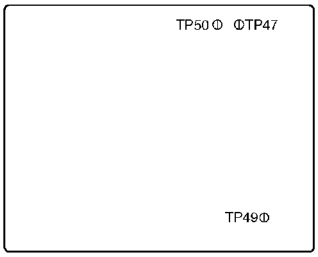


FUNCTION OF IMPORTANT TEST POINTS	
TP3001	Video Signal
TP3002	REC/PB Video envelope signal
TP4002	Normal Audio signal
TP6001	Service Test Point (inhibit sensors)
TP6003	Defeat Auto tracking function (connect to +5V(TP6009))
TP6009	+5V
TP6205	Head SW.

Test Point Information

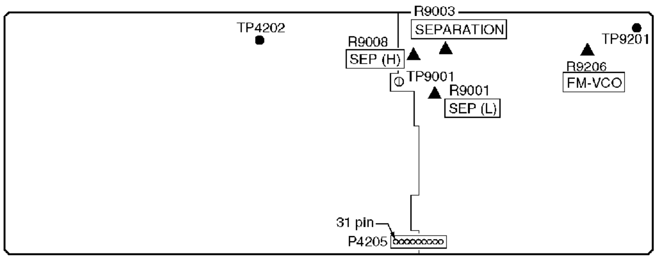
- ● Test Point with a Test Pin.
- ⦶ Test Point with a jumper wire across a hole in the P.C.B.
- ○ Test Point with no Test Pin.

CRT C.B.A.



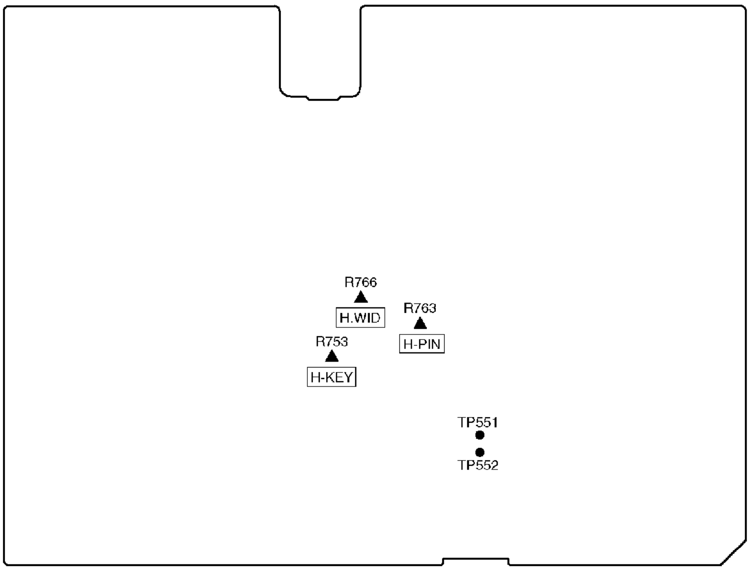
(Foil Side)

Audio C.B.A.



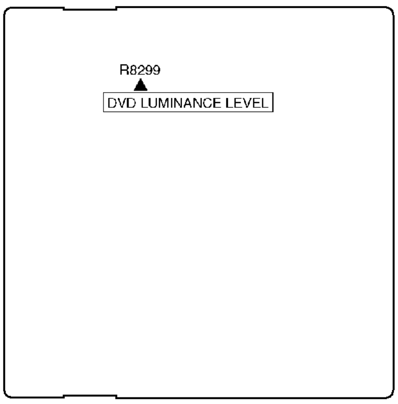
(Foil Side)

TV MAIN C.B.A.



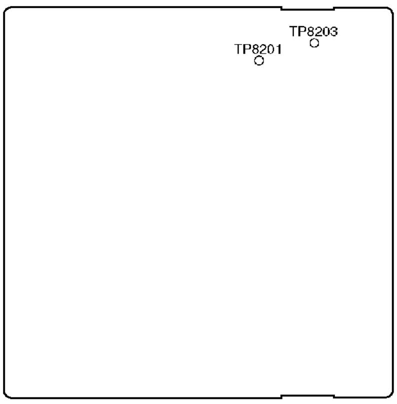
(Component Side)

DVD DECODER C.B.A.



(Component Side)

DVD DECODER C.B.A.



(Foil Side)

8. SCHEMATIC DIAGRAMS

8.1. SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES

8.2. MAIN SCHEMATIC DIAGRAMS

8.3. AUDIO SCHEMATIC DIAGRAMS

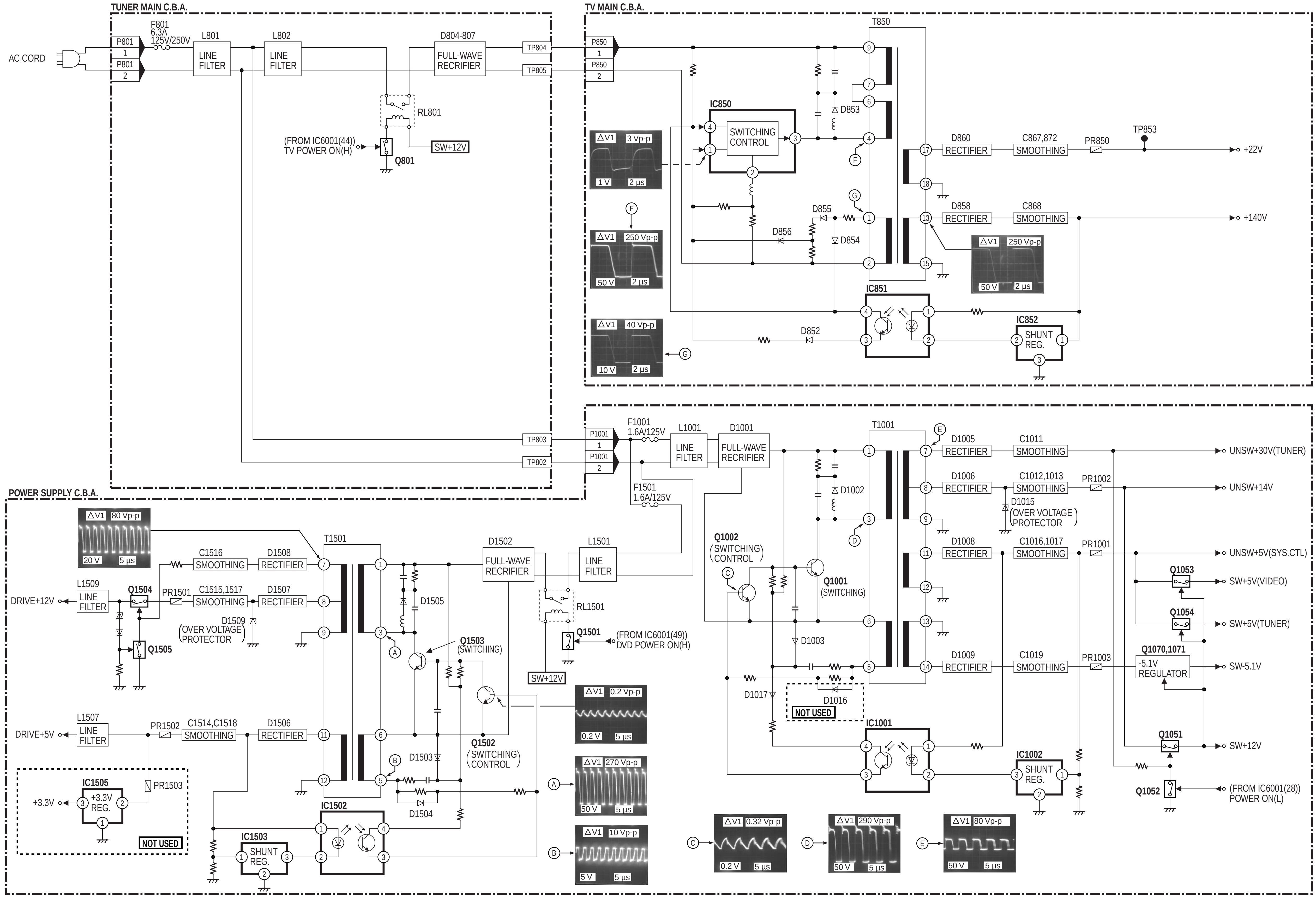
8.4. POWER SUPPLY SCHEMATIC DIAGRAM

8.5. OPERATION SCHEMATIC DIAGRAM

8.6. TV MAIN SCHEMATIC DIAGRAMS

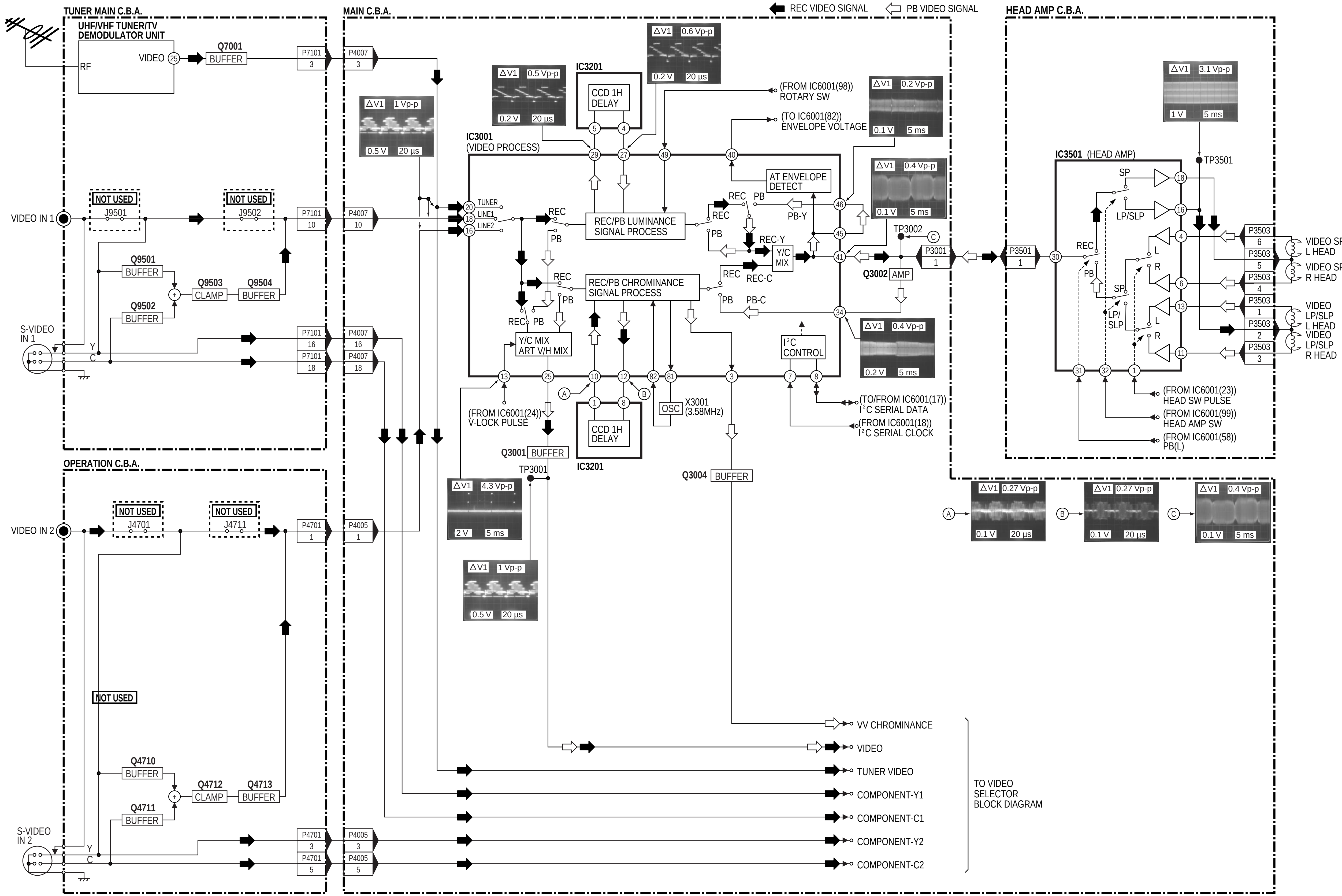
8.7. CRT SCHEMATIC DIAGRAM

POWER SUPPLY BLOCK DIAGRAM

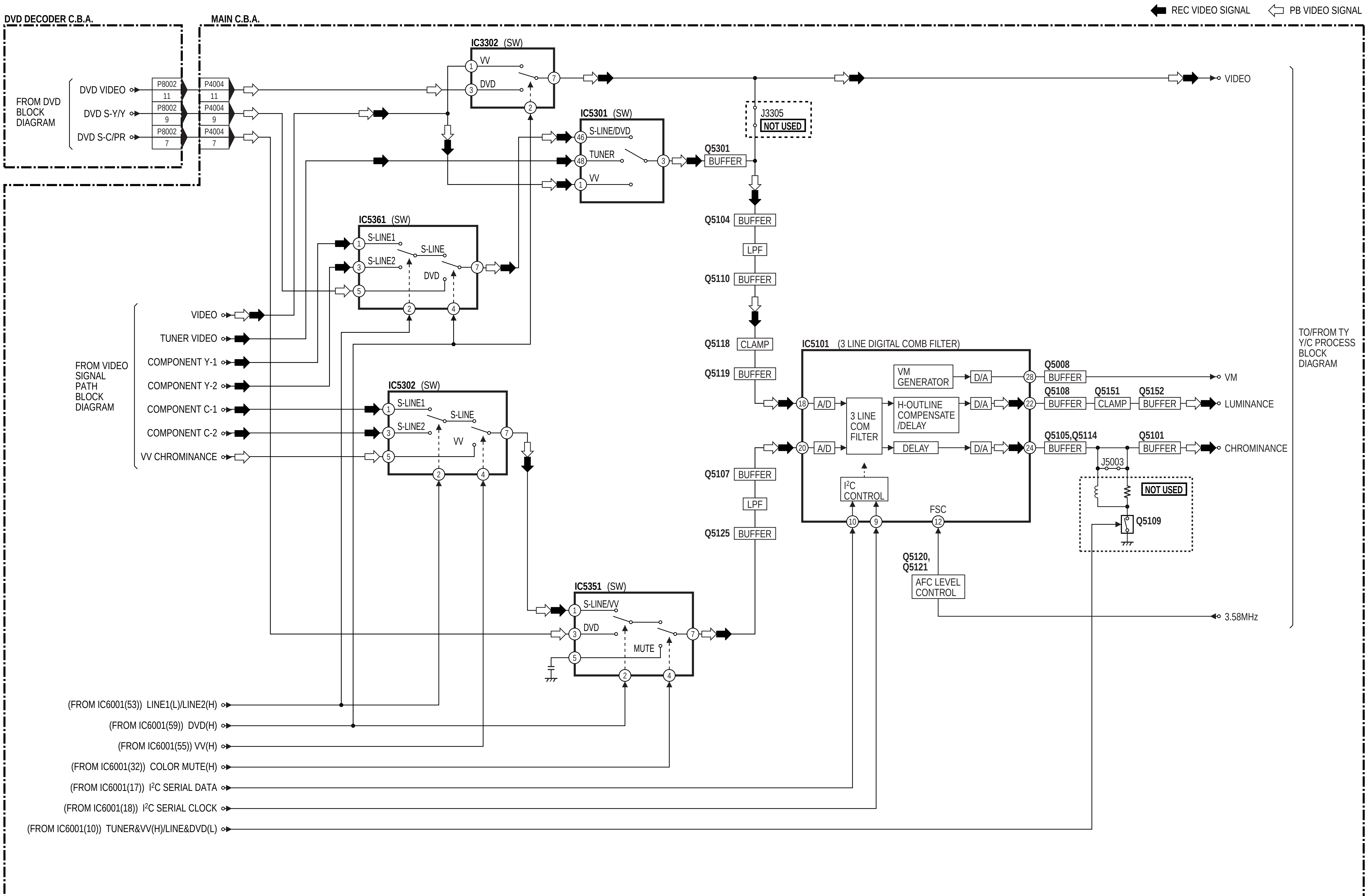


PV-DF2702/PV-DF2702-K POWER SUPPLY BLOCK DIAGRAM

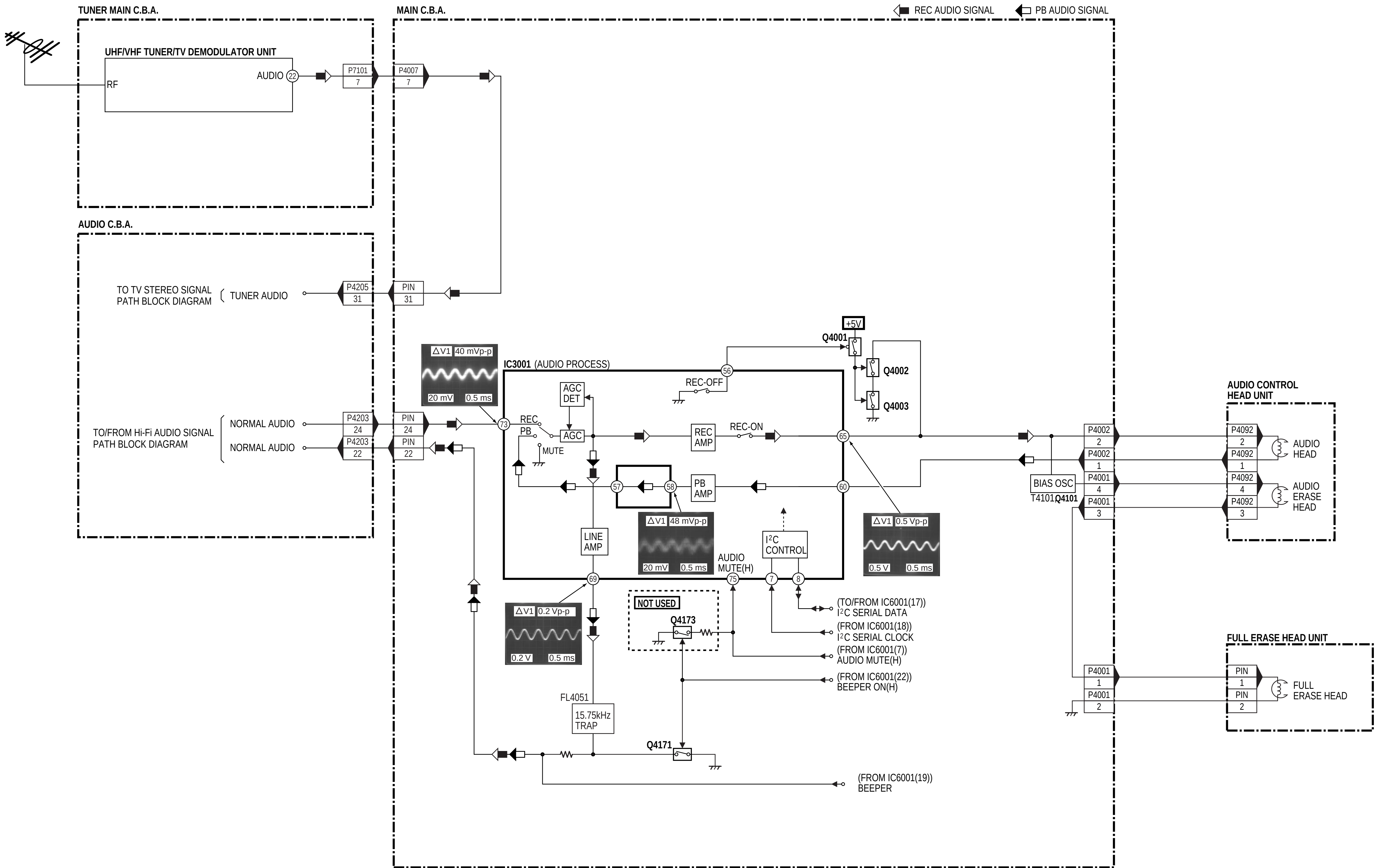
VIDEO SIGNAL PATH BLOCK DIAGRAM



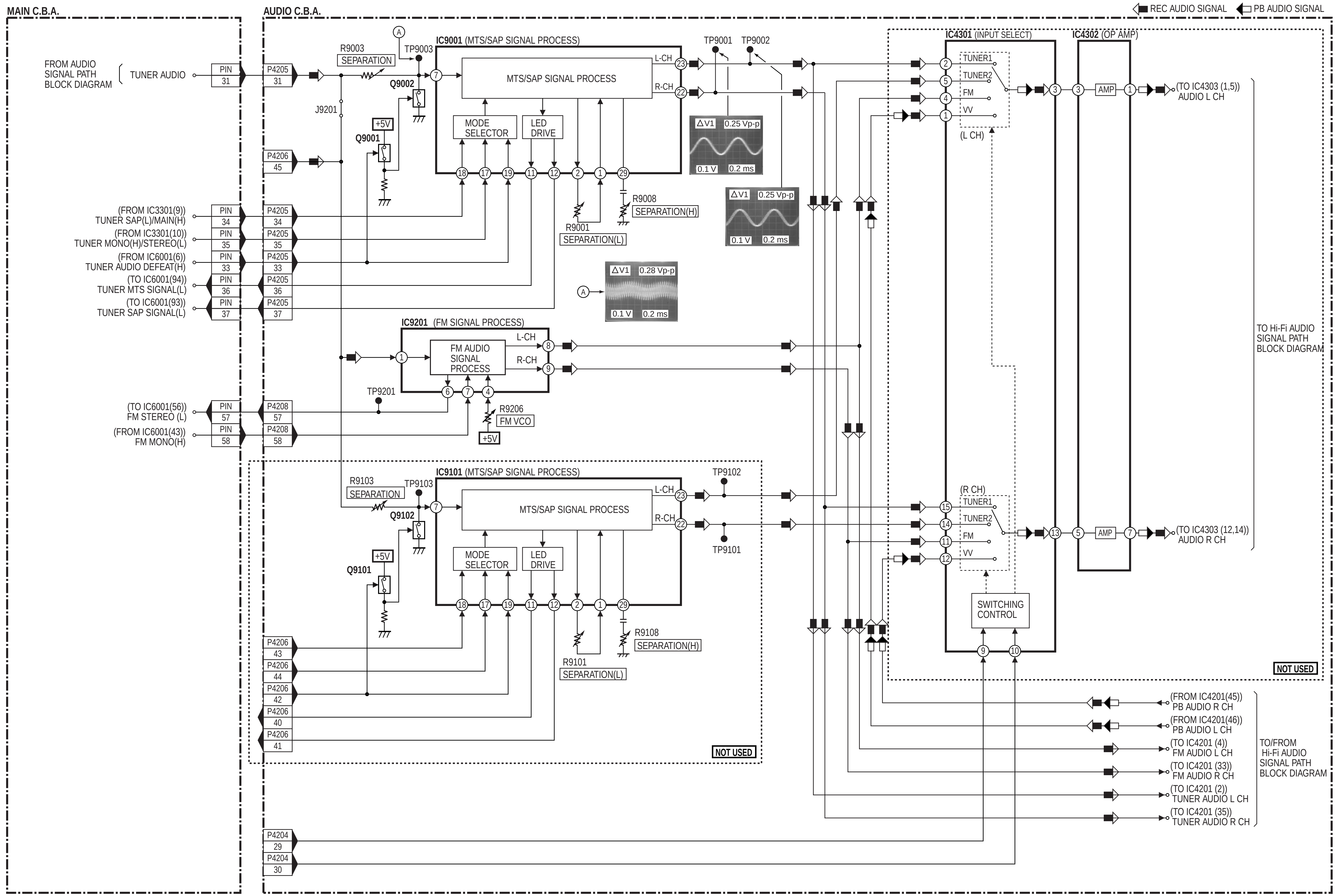
VIDEO SELEVTOR BLOCK DIAGRAM



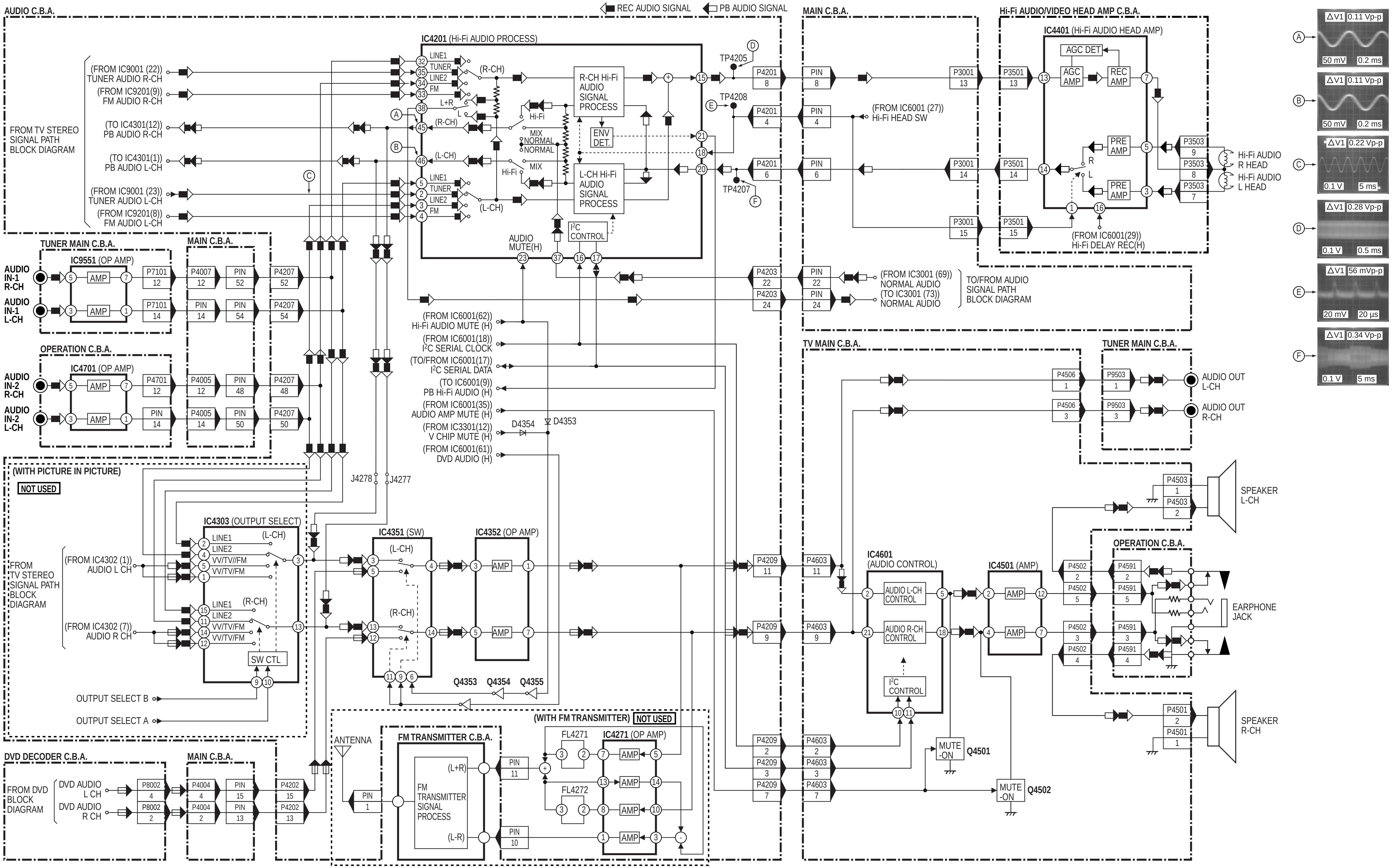
AUDIO SIGNAL PATH BLOCK DIAGRAM



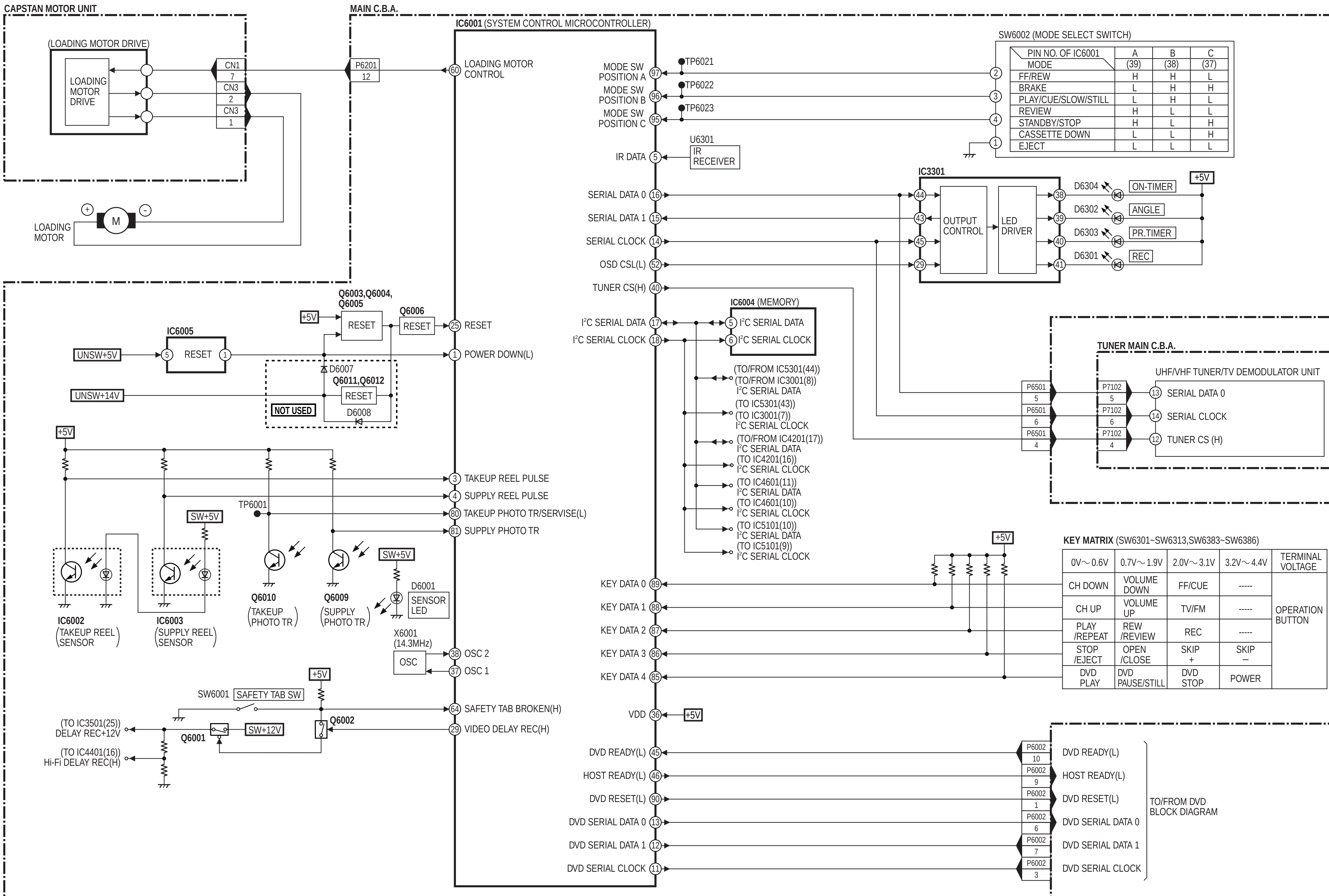
TV STEREO SIGNAL PATH BLOCK DIAGRAM



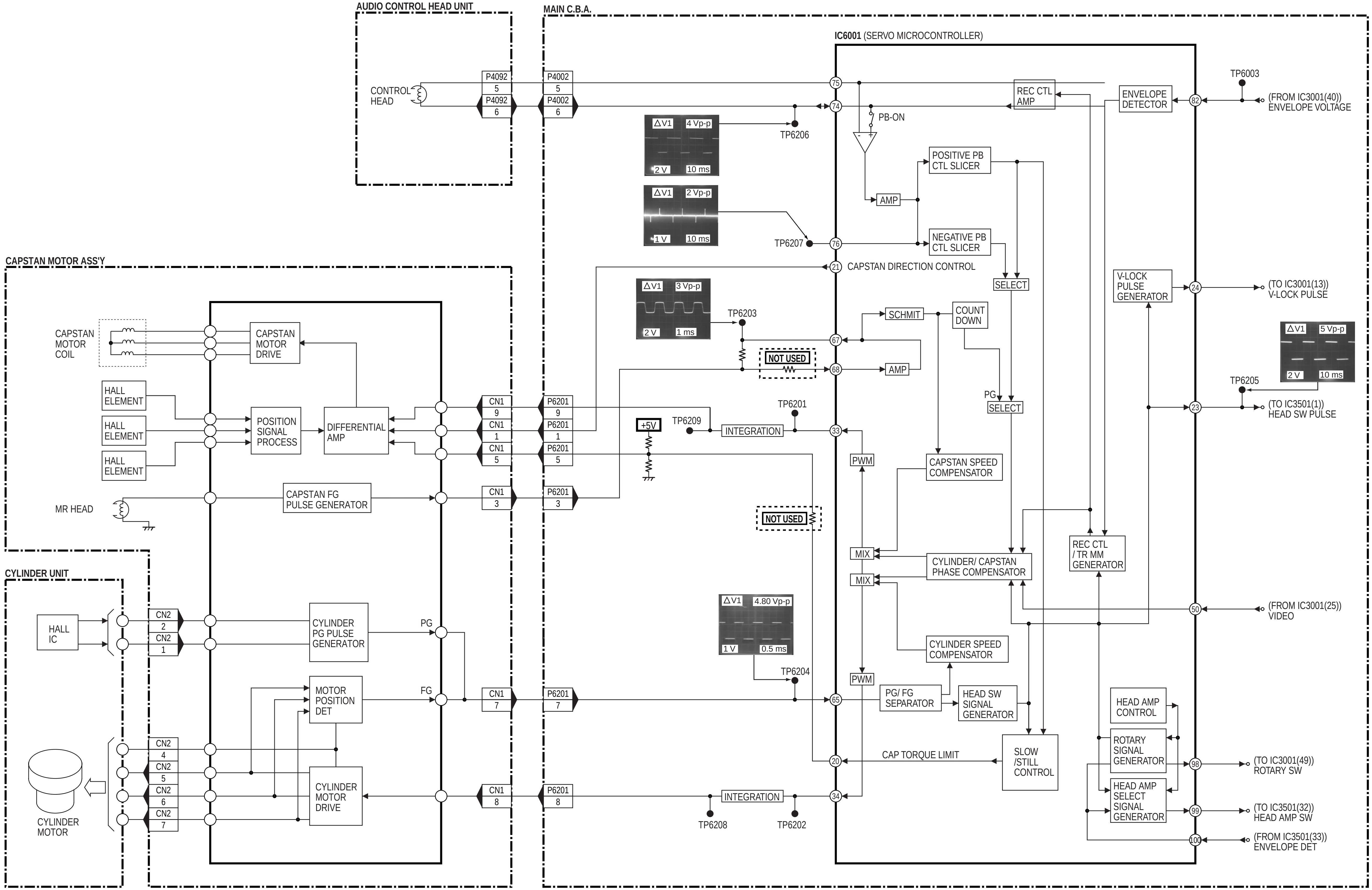
Hi-Fi AUDIO SIGNAL PATH BLOCK DIAGRAM



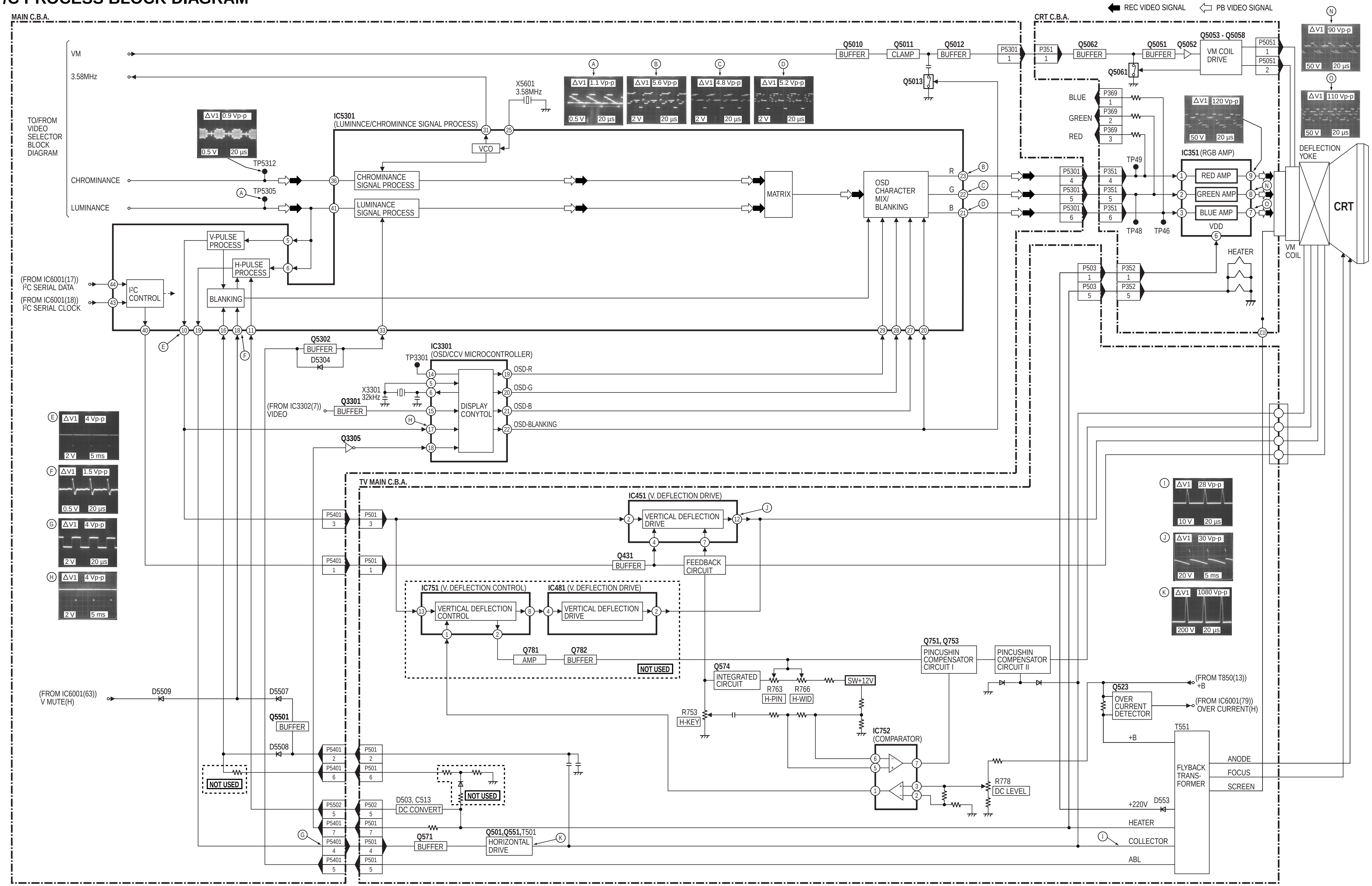
SYSTEM CONTROL BLOCK DIAGRAM



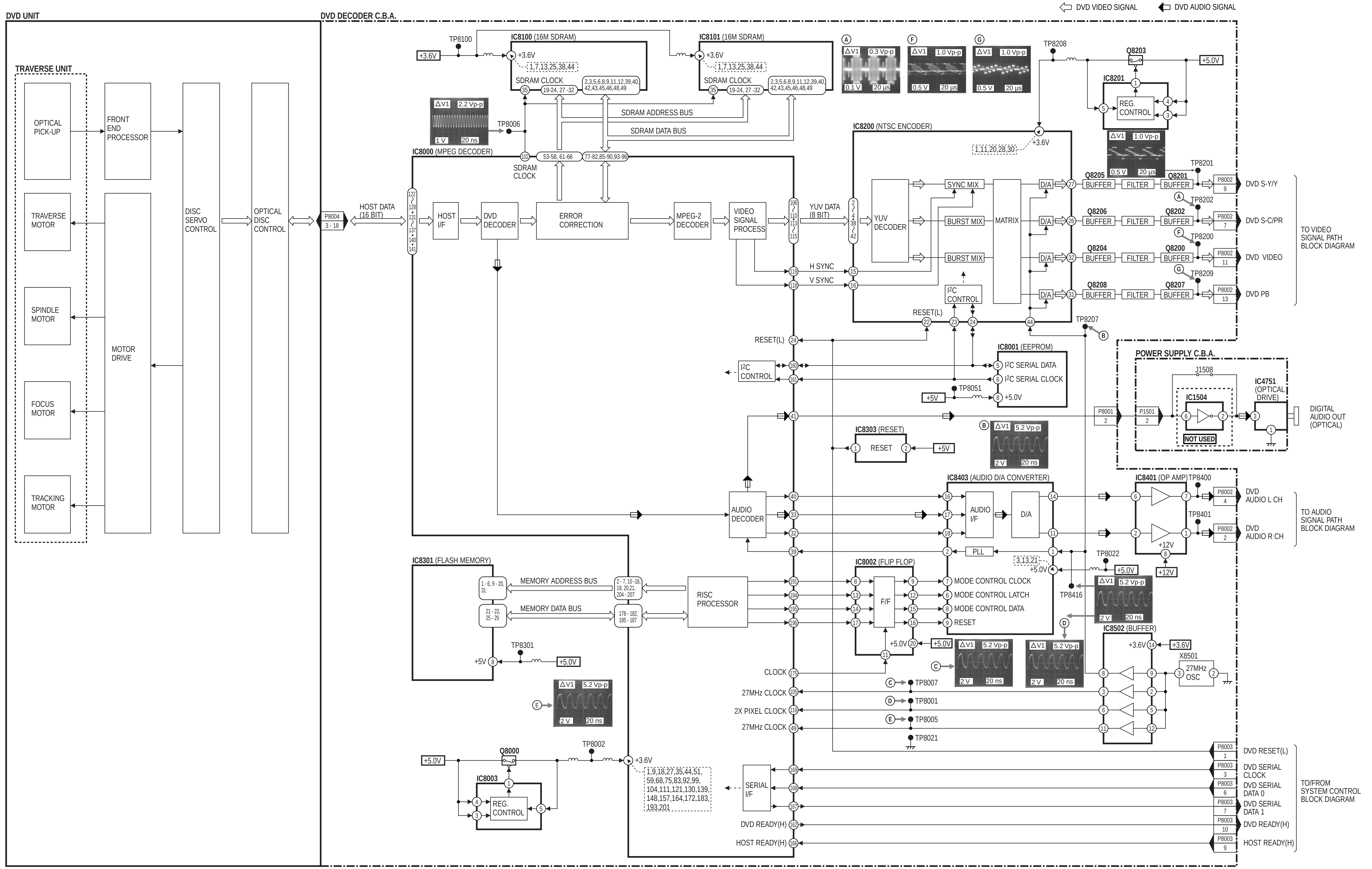
SERVO BLOCK DIAGRAM



TV Y/C PROCESS BLOCK DIAGRAM



DVD BLOCK DIAGRAM



Troubleshooting Hints

How to confirm which of DVD circuit or other circuits is defective.

1) Confirm DVD operation and VCR operation

1. Playback the VHS tape.
2. Playback the DVD disk.

- Both NG → Main C.B.A. is defective. Repair Main C.B.A.
- No PB VCR only → Main C.B.A. is defective. Repair Main C.B.A.
- No PB DVD only → DVD circuit is defective. Then, perform troubleshooting refering the "How to confirm which of DVD Unit or DVD Decoder C.B.A. is defective."

How to confirm which of DVD Unit or DVD Decoder C.B.A. is defective.

NOTE:
Host communication may not be done correctly between IC6001 on the Main C.B.A. and IC8000 on the DVD Decoder C.B.A. when there is a problem on the DVD Decoder C.B.A.
In that case, the unit is automatically switched to VCR mode after approx. 30 seconds even in DVD mode becouse the DVD Decoder C.B.A. is shut down. (Check the VCR mode indicator and DVD mode indicator on the Multi Function Display.)
Check the voltage during 30 seconds which the unit can be remained in DVD mode.

First confirm that other C.B.A. are checked O.K. other than DVD Unit and DVD Decoder C.B.A.
Check points: 1. All Power Supply Voltages for DVD circuit.
(P1501 pin 6, 7, 8, 9, P1503, P1505 on Main C.B.A.)
2. Output signal from DVD Decoder C.B.A.
(P3001 pin7, 9, 11, 13 on Main C.B.A.)

↓

Check the connections between the DVD Decoder C.B.A. to Main C.B.A. and Power Supply C.B.A.

↓

Check the connector cable (IDE cable) and the connector cable (Power) from the DVD unit.

↓

Set the unit to DVD mode.

- The unit is automatically switched to VCR mode after approx. 30 seconds even in DVD mode. → DVD Decoder C.B.A. is defective. Then, perform troubleshooting refering the "Troubleshooting Hints of DVD Decoder C.B.A."
- OK ↓

Perform the self diagnostic test function.
Refer to "SELF DIAGNOSTIC TEST FUNCTION FOR DVD UNIT."

- Error Code (10, 20, 30, 40, 50, 60, 70) is appears. → DVD Unit is defective. Replace DVD Unit.
- Error Code (00) is appears. ↓

Playback the test/normal DVD disk.

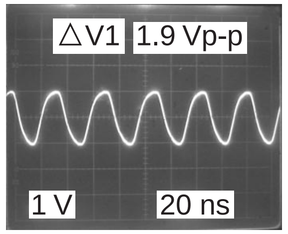
- If the Message "PLEASE CHECK THE DISK, AND FOR STAINS OR SCRATCHES ON DISK" appears. → DVD Unit is defective. Replace DVD Unit.
- If there is problem of audio or picture, even when it can playback. → DVD Decoder C.B.A. is defective. Replace DVD Decoder C.B.A.

Troubleshooting Hints of DVD Decoder C.B.A.

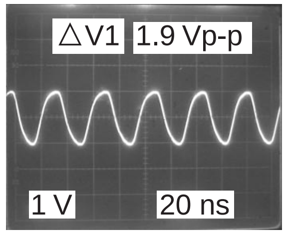
Cause: Decoder Problem

Check voltage at TP8002 on the DVD Decoder C.B.A. Is it +3.6V ?
- NG → Check IC8003. (REGULATOR CONTROL)
  - NG → Replace IC8003. (REGULATOR CONTROL)
  - OK → Check Power line.
- OK ↓

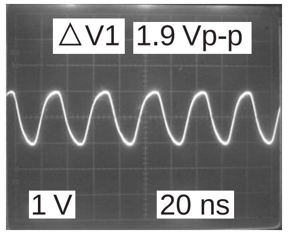
Check signal at TP8005, TP8007 and TP8001 on the DVD Decoder C.B.A.(27 MHz clock)
- NG → Check X8501.
  - NG → Replace X8501.
  - OK → Replace IC8502. (BUFFER)



TP8005



TP8007



TP8001

Cause: SDRAM Problem

Check voltage at TP8100 on the DVD Decoder C.B.A. Is it +3.6V ?
- NG → Check Power line.
- OK ↓

Check signal at TP8006 on the DVD Decoder C.B.A. (108 MHz clock)
- NG → Replace IC8000. (NTSC DECODER)
- OK → Replace IC8100. (64M SDRAM)

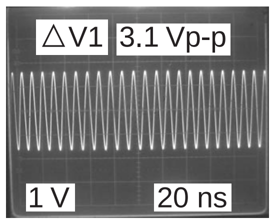
Cause: NTSC Encoder Problem

Check voltage at TP8208 on the DVD Decoder C.B.A. Is it +3.6V ?
- NG → Check IC8201. (REGULATOR CONTROL)
  - NG → Replace IC8201. (REGULATOR CONTROL)
  - OK → Check Power line.
- OK ↓

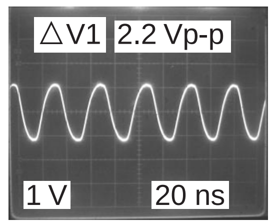
Check signal at TP8207 on the DVD Decoder C.B.A. (27 MHz clock)
- NG → Check X8501.
  - NG → Replace X8501.
  - OK → Replace IC8502. (BUFFER)
- OK → Replace IC8200. (NTSC ENCODER)

Cause: Audio DAC Problem

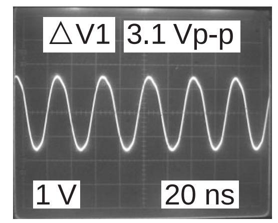
- Check voltage at TP8022 on the DVD Decoder C.B.A. Is it +5.0V ?
  - NG → Check Power line.
  - OK → Check signal at TP8416 on the DVD Decoder C.B.A. (27 MHz clock)
    - NG → Check X8501.
      - NG → Replace X8501.
      - OK → Replace IC8502. (BUFFER)
    - OK → Replace IC8403. (AUDIO D/A CONVERTER)



TP8006



TP8207



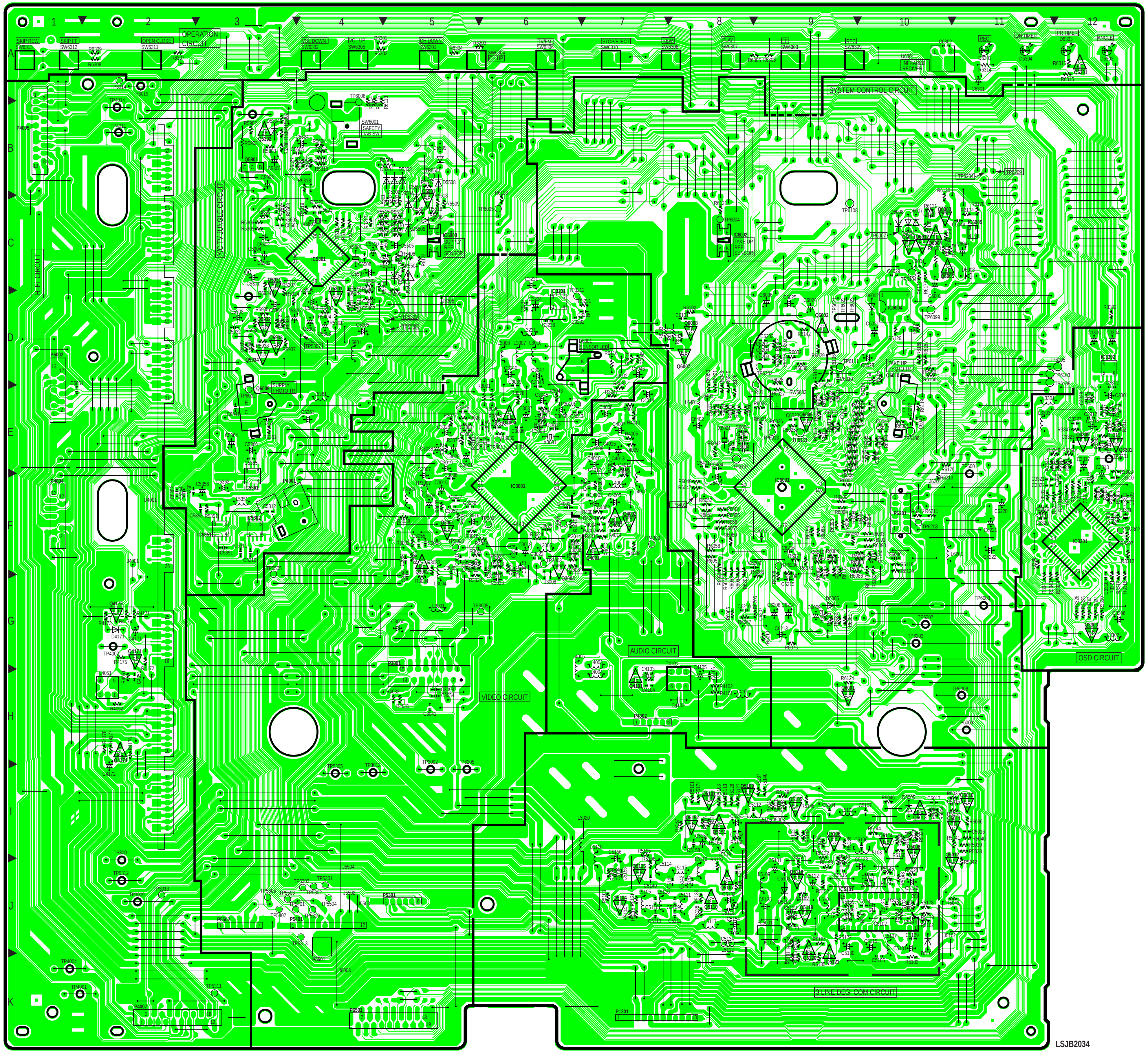
TP8416

Cause: EEPROM Problem

- Check voltage at TP8051 on the DVD Decoder C.B.A. Is it +5.0V ?
  - NG → Check Power line.
  - OK → Replace IC8001. (EEPROM)

Cause: Flash ROM Problem

- Check voltage at TP8301 on the DVD Decoder C.B.A. Is it +3.6V ?
  - NG → Check Power line.
  - OK → Replace IC8301. (FLASH MEMORY)



NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

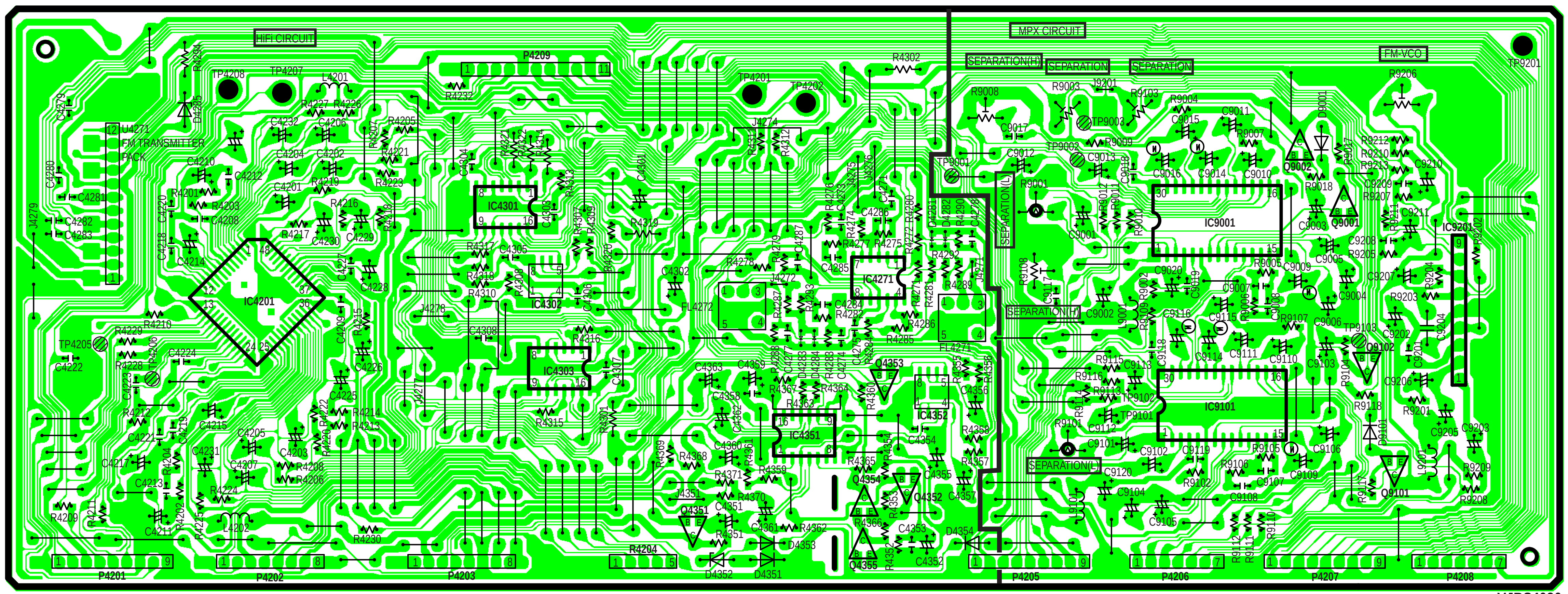
IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

NOTE:
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED. PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST FOR PROPER PARTS CONTENT.

AUDIO C.B.A. VEPS4036B

NOTE:
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST FOR PROPER PARTS CONTENT.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.



VJBS4036

TUNER MAIN C.B.A. VEPS9005B

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COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS,
USE ONLY THE SPECIFIED PARTS.

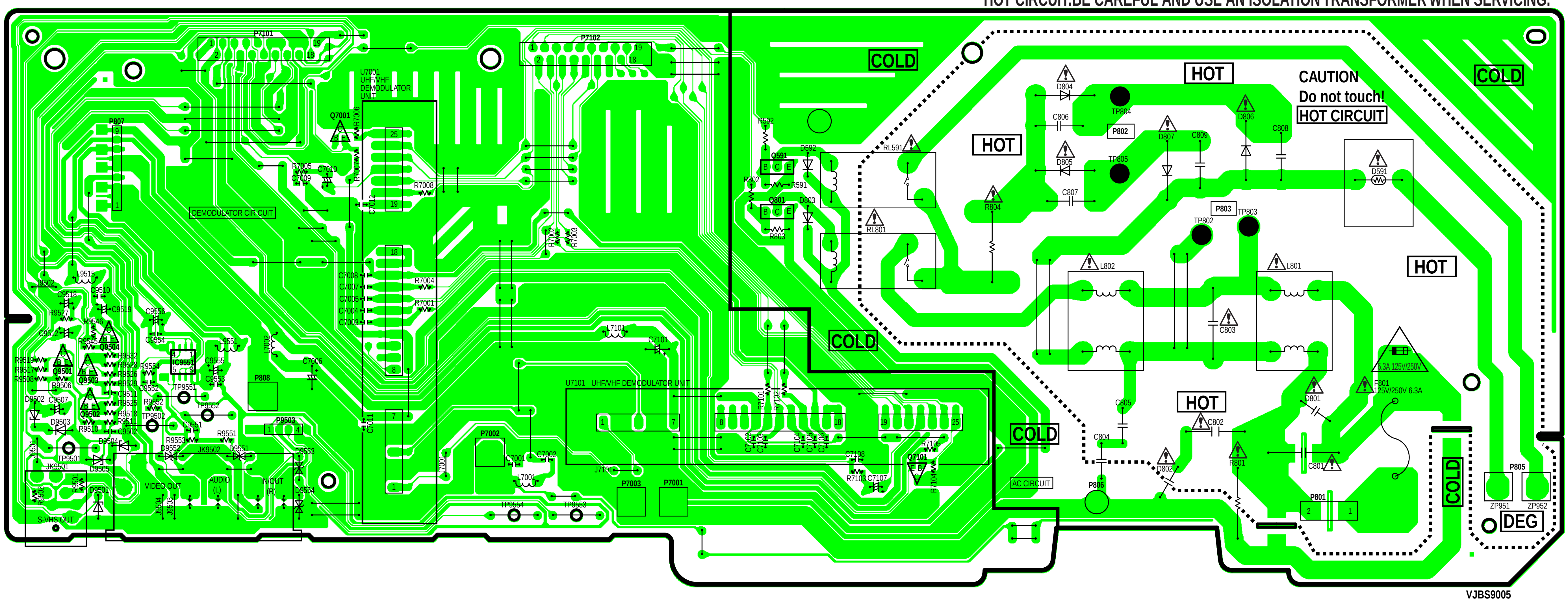
NOTE:
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST FOR PROPER PARTS CONTENT.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

6.3A 125V/250V

CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,
REPLACE ONLY WITH THE SAME TYPE 6.3A 125V/250V FUSE.
ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES
D' INCENDIE N' UTILISERQUE DES FUSIBLE DE MÉME
TYPE 6.3A 125V/250V

HOT CIRCUIT.BE CAREFUL AND USE AN ISOLATION TRANSFORMER WHEN SERVICING.

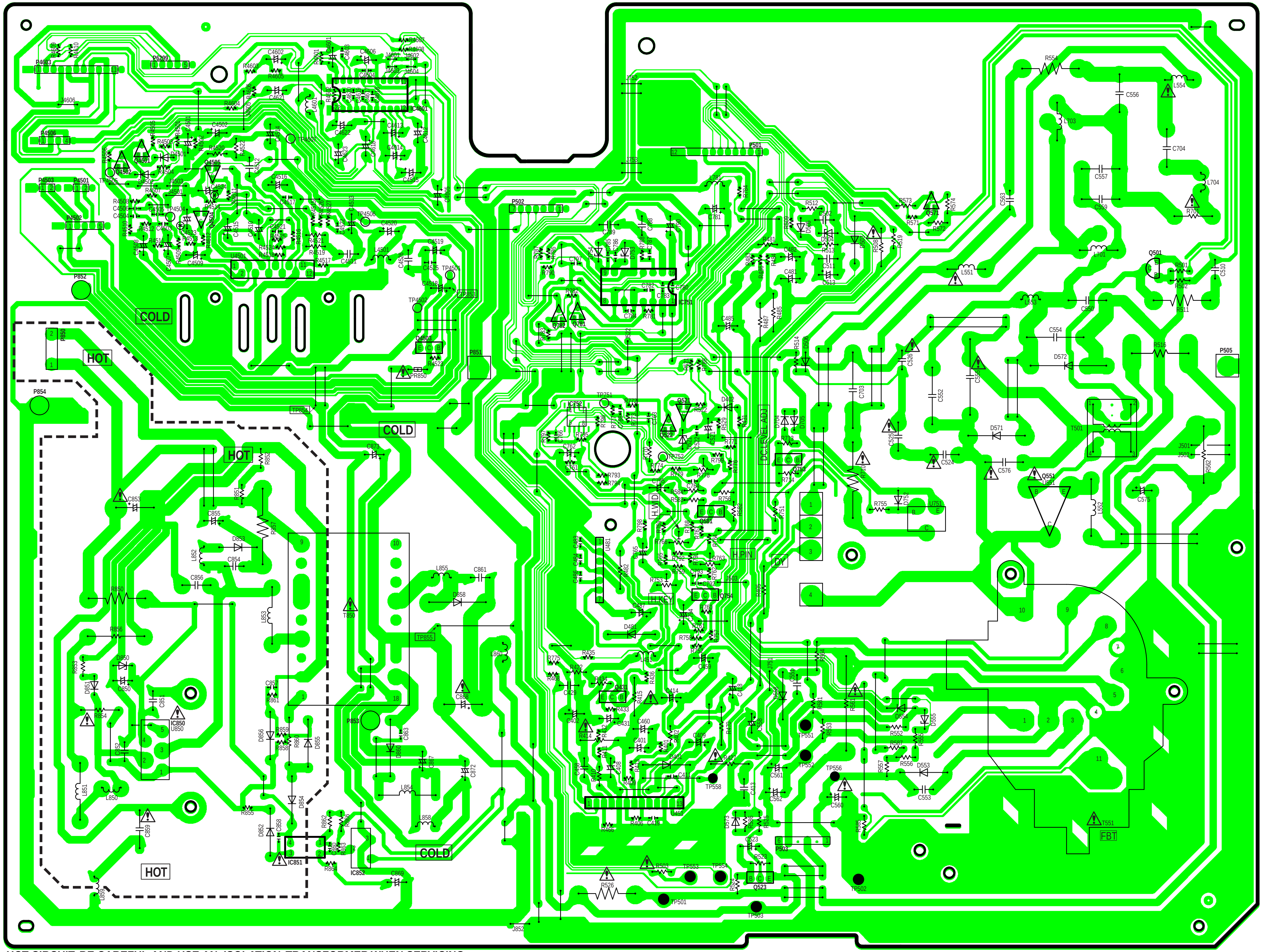


TV MAIN C.B.A. LSEP2036A

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE:
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED. PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST FOR PROPER PARTS CONTENT.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.



HOT CIRCUIT. BE CAREFUL AND USE AN ISOLATION TRANSFORMER WHEN SERVICING.

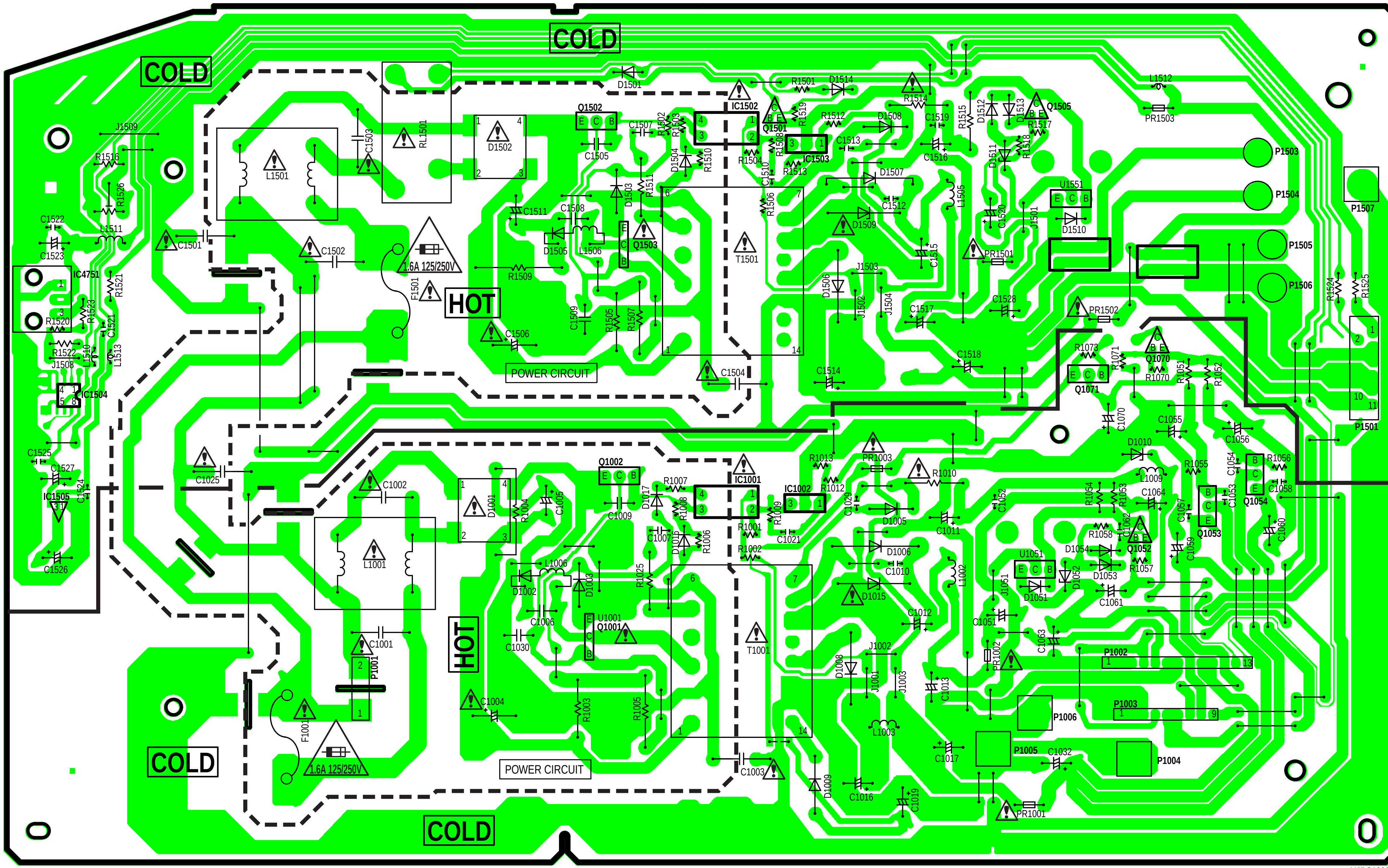
POWER SUPPLY C.B.A.
VEPS1020B

CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE 1.6A 125/250V FUSE.
ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES D'T INCENDIE N'I UTILISERQUE DES FUSIBLE DE MÉME TYPE 1.6A 125/250V

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

NOTE:
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.
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NOTE:
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HOT CIRCUIT. BE CAREFUL AND USE AN ISOLATION TRANSFORMER WHEN SERVICING.

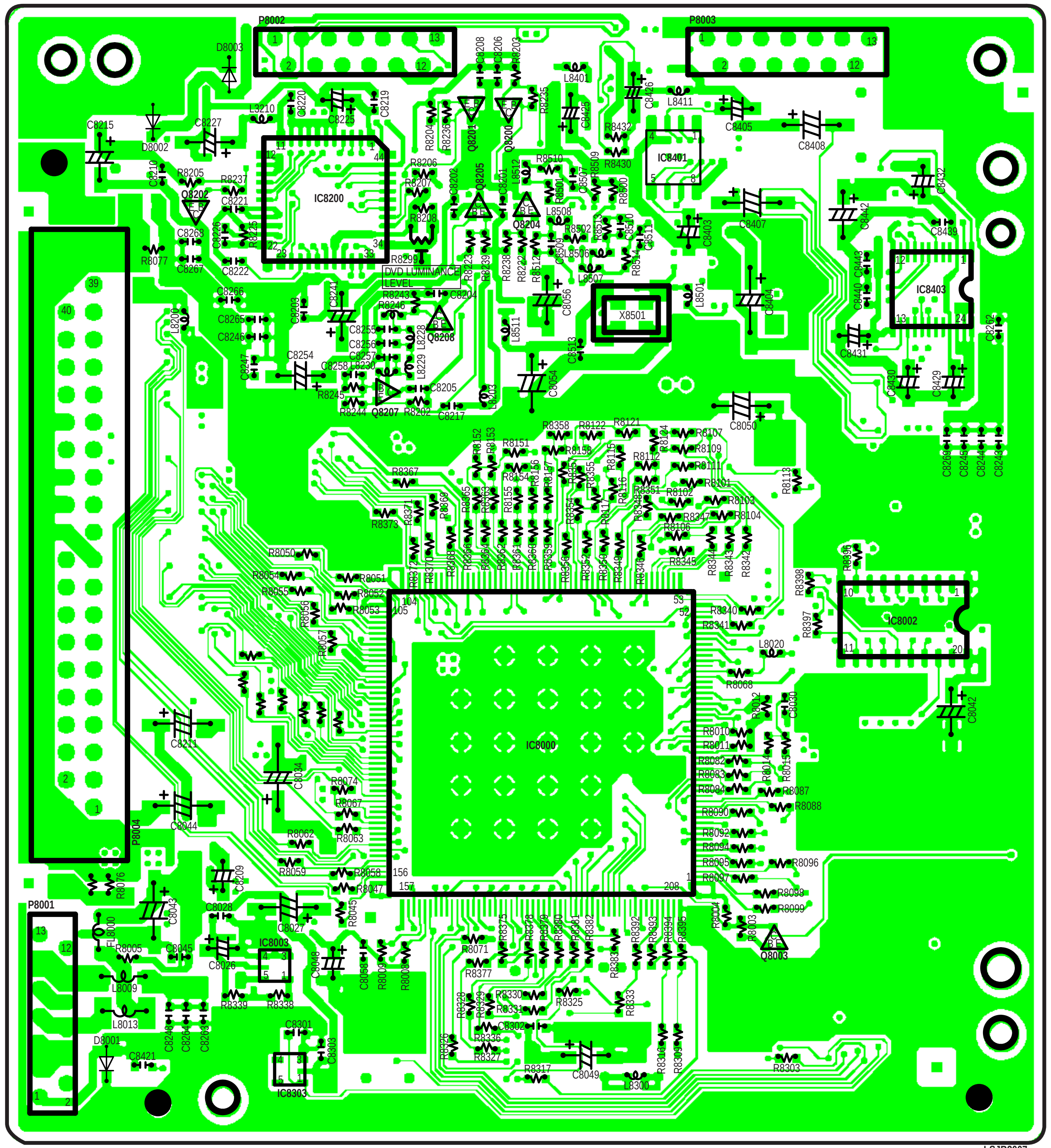
DVD DECODER C.B.A. LSEP2007B

NOTE: MULTILAYER C.B.A.
THIS C.B.A. IS Multi-Layer C.B.A. THIS CIRCUIT BOARD SHOWS COMPONENT LAYOUT-PATTERN FOR COMPONENT SIDE AND FOIL SIDE. LAYOUT PATETRNS ARE SINGLE PATTERN FOR EACH SIDE THAT MAKE EASY TO SIGHT THE COMPONENT LAYOUT.

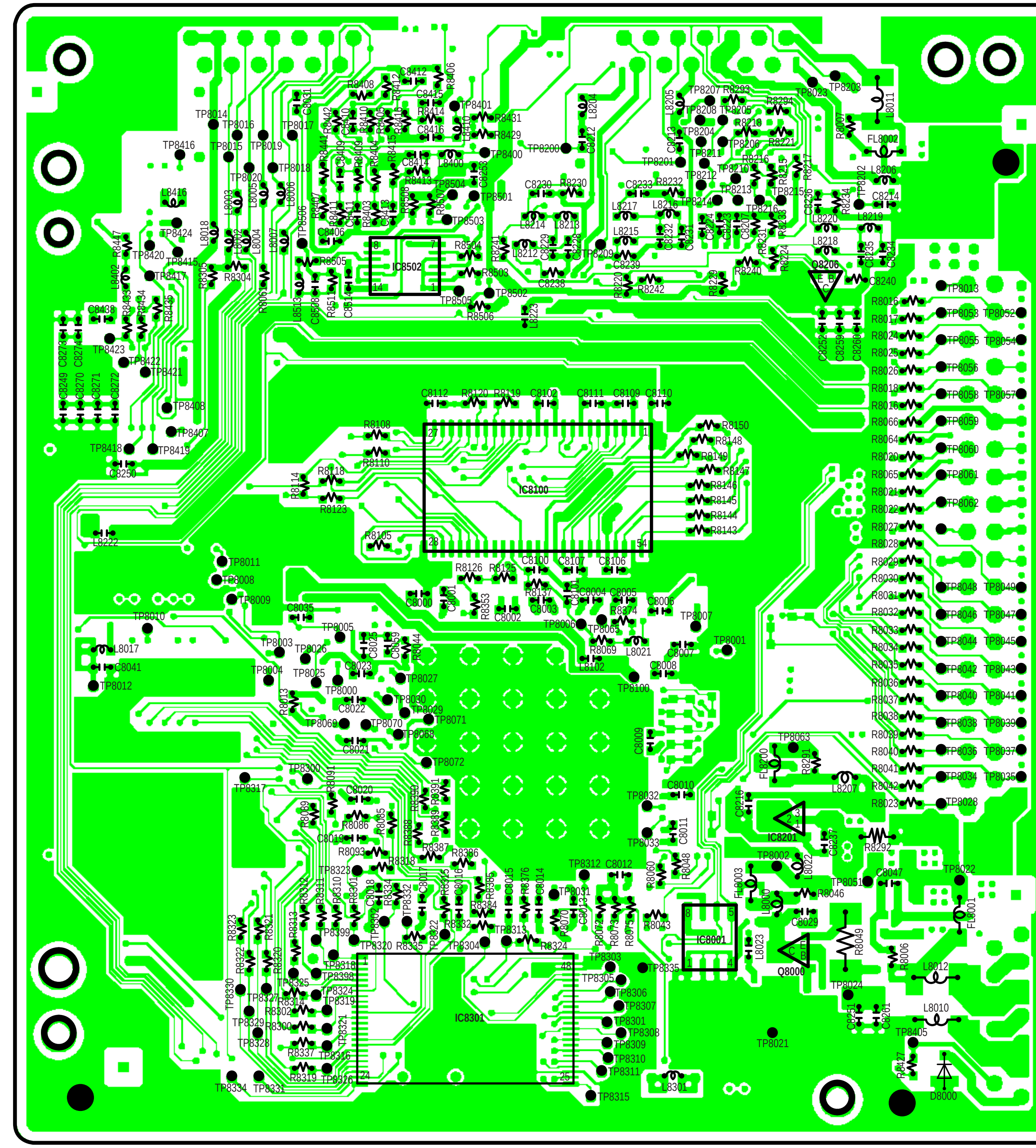
NOTE:
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NOTE:
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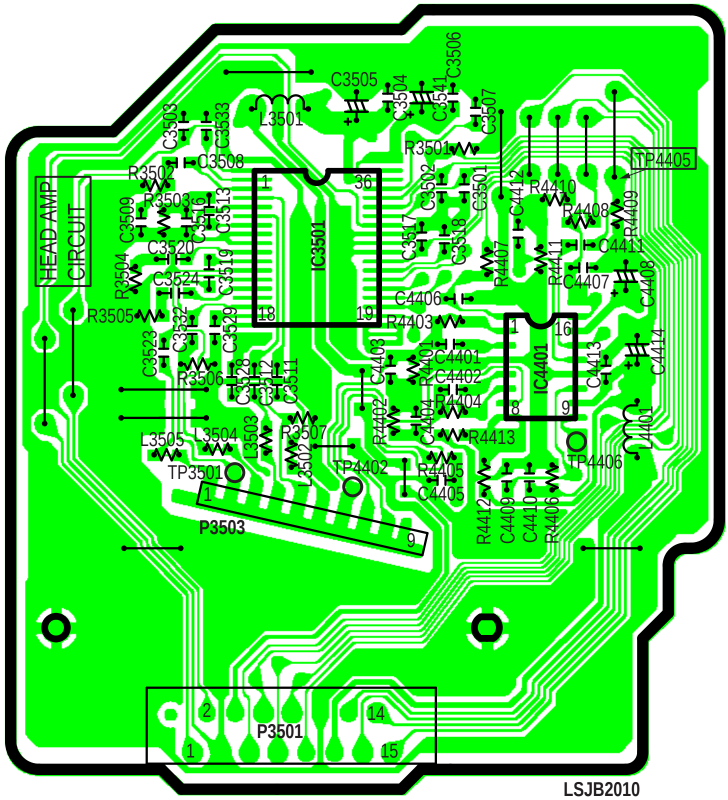
(COMPONENT SIDE)



(FOIL SIDE)



Hi-Fi AUDIO/VIDEO HEAD AMP C.B.A.
LSEP2010A

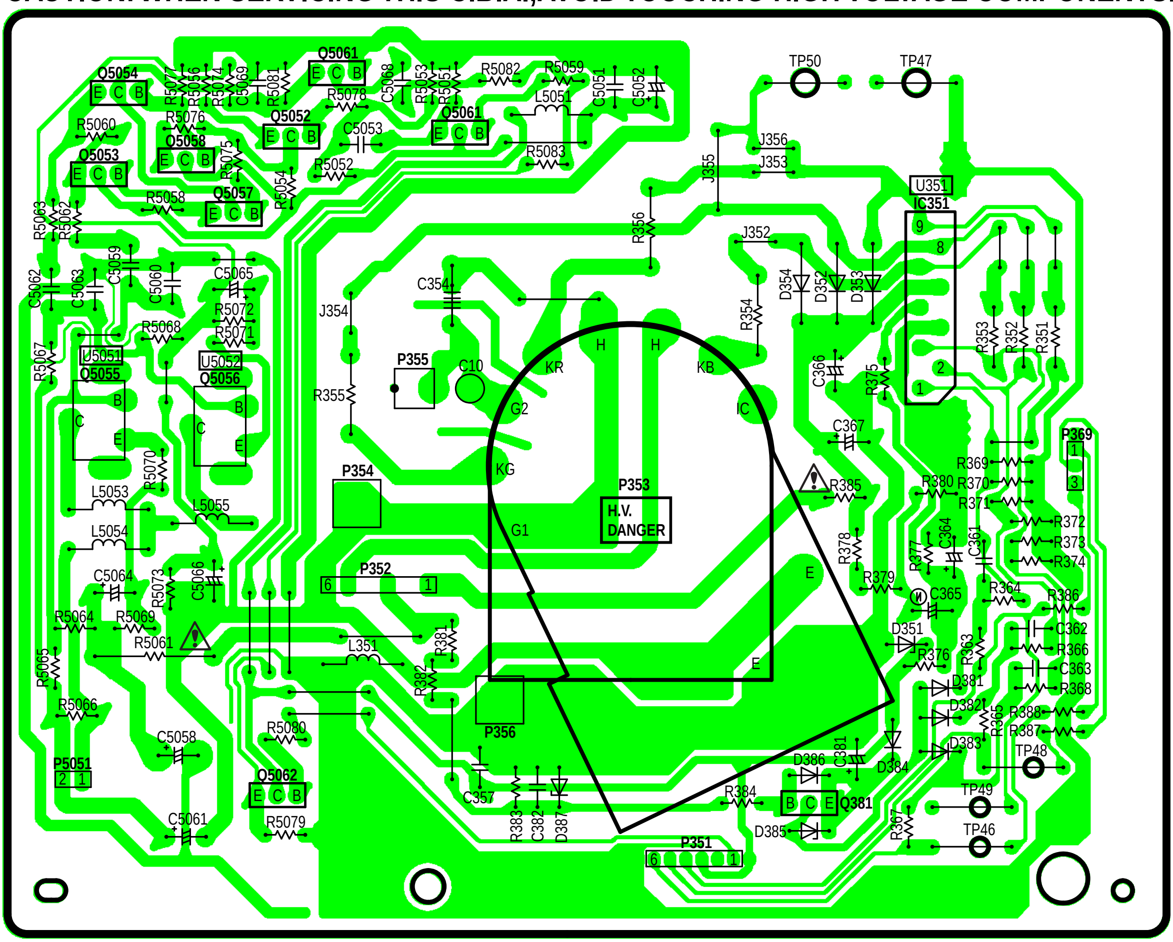


NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE:
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PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST FOR PROPER PARTS CONTENT.

CRT C.B.A. LRP63021C

CAUTION: WHEN SERVICING THIS C.B.A.,AVOID TOUCHING HIGH VOLTAGE COMPONENTS.



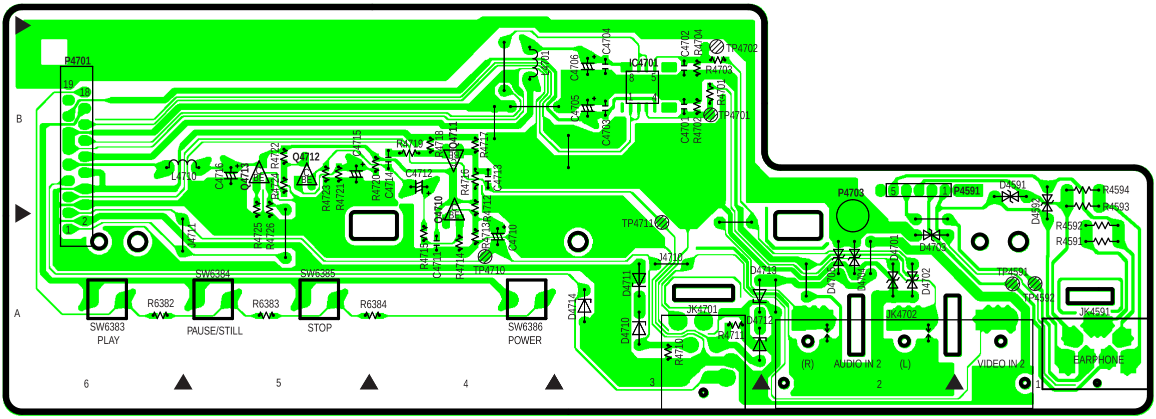
LRP63021

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

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SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.
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USE ONLY THE SPECIFIED PARTS.

OPERATION C.B.A. VEPS8060B



VJBS8060

NOTE:
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Panasonic®

TV/DVD/VCR Combination
Operating Instructions

OMNIVISION VHS

Models No. PV-DF2002/PV-DF2702



• Initial Setup and Connection Procedures are on pages 14 to 17.

DOLBY DIGITAL   dts® DIGITAL OUT   DVD VIDEO™   COMPACT disc DIGITAL VIDEO   COMPACT disc DIGITAL AUDIO   READY TO PLAY!

As an ENERGY STAR® Partner, Matsushita Electric Corporation of America has determined that this product or product model meets the ENERGY STAR® guidelines for energy efficiency.

Please read these instructions carefully before attempting to connect, operate, or adjust this product. Please save this manual.
Spanish Quick Use Guide is included.
(Guía para rápida consulta en español está incluida.)

LSQT0521A

For assistance, please call : 1-800-211-PANA(7262) or send e-mail to : consumerproducts@panasonic.com

Important Safeguards and Precautions

READ AND RETAIN ALL SAFETY AND OPERATING INSTRUCTIONS. HEED ALL WARNINGS IN THE MANUAL AND ON UNIT

INSTALLATION

1 POWER SOURCE CAUTION
Operate only from power source indicated on unit or in this manual. If uncertain, have your Electric Utility Service Company or Video Products Dealer verify your home power source.

2 POWER CORD PLUG
For safety, this unit has a polarized type plug (one wide blade), or a three-wire grounding type plug. Always hold the plug firmly and make sure your hands are dry when plugging in or unplugging the AC power cord. Regularly remove dust, dirt, etc. on the plug.

POLARIZED PLUG CAUTION:
The plug fits into outlet one way. If it cannot be fully inserted, try reversing it. If it still will not fit, have an electrician install the proper wall outlet. Do not tamper with the plug.

GROUNDING PLUG CAUTION:
The plug requires a three-hole grounding outlet. If necessary, have an electrician install the proper outlet. Do not tamper with the plug.

3 POWER CORD
To avoid unit malfunction, and to protect against electrical shock, fire or personal injury:
- Keep power cord away from heating appliances and walking traffic. Do not rest heavy objects on, or roll such objects over the power cord.
- Do not tamper with the cord in any way.
- An extension cord should have the same type plug (polarized or grounding) and must be securely connected.
- Overloaded wall outlets or extension cords is a fire hazard.
- Frayed cords, damaged plugs, and damaged or cracked wire insulation are hazardous and should be replaced by a qualified electrician.

4 DO NOT BLOCK VENTILATION HOLES
Ventilation openings in the cabinet release heat generated during operation. If blocked, heat build-up may result in a fire hazard or heat damage to cassettes or discs.
For your protection:
a. Never cover ventilation slots while unit is ON, or operate unit while placed on a bed, sofa, rug, or other soft surface.
b. Avoid built-in installation, such as a book case or rack, unless properly ventilated.

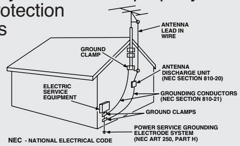
5 AVOID EXTREMELY HOT LOCATIONS OR SUDDEN TEMPERATURE CHANGES
Do not place unit over or near a heater or radiator, in direct sunlight, inside closed vehicles, in high temperature [over 95°F (35°C)], or in over 75% humidity. If unit is suddenly moved from a cold place to a warm one, moisture may condense in unit and on the tape causing damage. Never subject unit to vibration, impact, or place it so that the surface is tilted as internal parts may be seriously damaged.

6 TO AVOID PERSONAL INJURY
- Never place unit on support or stand that is not firm, level, and adequately strong. The unit could fall causing serious injury to a child or adult and damage to the unit.
- Move any appliance and cart combination with care. Quick stops, excessive force, and uneven surfaces may cause objects to overturn.
- Carefully follow all operating instructions.



OUTDOOR ANTENNA INSTALLATION

1 SAFE ANTENNA AND CABLE CONNECTION
An outside antenna or cable system must be properly grounded to provide some protection against built up static charges and voltage. Section 810 of the National Electrical Code, ANSI/NFPA 70 (in Canada, part 1 of the Canadian Electrical Code) provides information regarding proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.



2 KEEP ANTENNA CLEAR OF HIGH VOLTAGE POWER LINES OR CIRCUITS
Locate an outside antenna system well away from power lines and electric light or power circuits so it will never touch these power sources should it ever fall. When installing antenna, absolutely never touch power lines, circuits or other power sources as this could be fatal.

USING THE UNIT

Before unit is brought out of storage or moved to a new location, refer again to the INSTALLATION section of these safeguards.

1 KEEP UNIT WELL AWAY FROM WATER OR MOISTURE, such as vases, sinks, tubs, etc.

2 IF EXPOSED TO RAIN, MOISTURE, OR STRONG IMPACT, unplug unit and have it inspected by a qualified service technician before use.

3 ELECTRICAL STORMS
During a lightning storm, or before leaving unit unused for extended periods of time, disconnect all equipment from the power source as well as the antenna and cable system.

4 WHEN UNIT IS PLUGGED IN
• DO NOT OPERATE IF:
- liquid has spilled into unit.
- unit was dropped or otherwise damaged.
- unit emits smoke, malodors, or noises.
Immediately unplug unit, and have it inspected by a service technician to avoid potential fire and shock hazards.
- Never drop or push any object through openings in unit. Touching internal parts may cause electric shock or fire hazard. Do not put any foreign object on the tray.
- Keep magnetic objects, such as speakers, away from unit to avoid electrical interference.

5 USING ACCESSORIES
Use only accessories recommended by the manufacturer to avoid risk of fire, shock, or other hazards.

6 CLEANING UNIT
Unplug unit. Use a clean, dry, chemically untreated cloth to gently remove dust or debris. DO NOT USE cleaning fluids, aerosols, or forced air that could over-spray, or seep into unit and cause electrical shock. Any substance, such as wax, adhesive tape, etc. may mar the cabinet surface. Exposure to greasy, humid, or dusty areas may adversely affect internal parts.

SERVICE

1 DO NOT SERVICE PRODUCT YOURSELF
If, after carefully following detailed operating instructions, the unit does not operate properly, do not attempt to open or remove covers, or make any adjustments not described in the manual. Unplug unit and contact a qualified service technician.

2 REPLACEMENT OF PARTS
Make sure the service technician uses only parts specified by the manufacturer, or have equal safety characteristics as original parts. The use of unauthorized substitutes may result in fire, electric shock, or other hazards.

3 SAFETY CHECK AFTER SERVICING
After unit is serviced or repaired, request that a thorough safety check be done as described in the manufacturer's service literature to insure video unit is in safe operating condition.

Safety Precautions/Mesures de sécurité

Warning : To prevent fire or shock hazard, do not expose this equipment to rain or moisture.
Caution : To prevent electric shock, match wide blade of plug to wide slot, fully insert.
Avertissement : Afin de prévenir tout risque d'incendie ou de chocs électriques, ne pas exposer cet appareil à la pluie ou à une humidité excessive.
Attention : Pour éviter les chocs électriques, introduire la lame la plus large de la fiche dans la borne correspondante de la prise et pousser jusqu'au fond.

FCC WARNING : Any unauthorized changes or modifications to this equipment would void the user's authority to operate.

CAUTION:
UNIT IS A CLASS I LASER PRODUCT.
HOWEVER THIS UNIT USES A VISIBLE LASER BEAM WHICH COULD CAUSE HAZARDOUS RADIATION EXPOSURE IF DIRECTED. BE SURE TO OPERATE THE UNIT CORRECTLY AS INSTRUCTED.
WHEN THIS UNIT IS PLUGGED TO THE WALL OUTLET, DO NOT PLACE YOUR EYES CLOSE TO THE OPENING OF THE DISC TRAY AND OTHER OPENINGS TO LOOK INTO THE INSIDE OF THIS UNIT.
USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.
DO NOT OPEN COVERS AND DO NOT ATTEMPT TO REPAIR THE UNIT YOURSELF. REFER SERVICING TO QUALIFIED PERSONNEL.

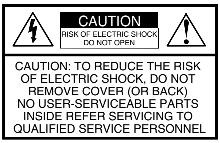
CAUTION:
LASER RADIATION WHEN OPEN. DO NOT STARE INTO BEAM.

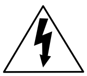
ATTENTION:
RAYONNEMENT LASER EN CAS D'OUVERTURE. NE PAS REGARDER DANS LE FAISCEAU.

(Inside of product)

FCC NOTICE:
This equipment has been tested and found to comply with part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when operated in a residential environment. If this eqiupment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, use the equipment in another location and/or utilize an electrical outlet different from that used by the receiver. If necessary, consult the dealer or an experienced radio/TV technician for help. You may find the booklet, 'Something About Interference' available from FCC local regional offices helpful.

This product utilizes both a Cathode Ray Tube (CRT) and other components that contain lead. Disposal of these materials may be regulated in your community due to environmental considerations. For disposal or recycling information please contact your local authorities, or the Electronics Industries Alliance: <http://www.eiae.org.>





This symbol warns the user that uninsulated voltage within the unit may have sufficient magnitude to cause electric shock. Therefore, it is dangerous to make any kind of contact with any inside part of this unit.



This symbol alerts the user that important literature concerning the operation and maintenance of this unit has been included. Therefore, it should be read carefully in order to avoid any problems.

Region Management Information

Region Management Information: This unit is designed and manufactured to respond to the Region Management Information that is recorded on a DVD disc. If the Region number described on the DVD disc does not correspond to the Region number of this unit, this unit cannot play this disc.

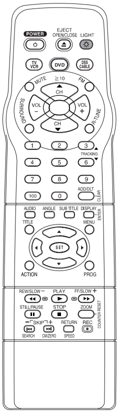
The Region number for this unit is 1.

Congratulations

on your purchase of one of the most sophisticated and reliable products on the market today. Used properly, it will bring you and your family years of enjoyment. Please fill in the information below. The serial number is on the tag located on the back of your unit.

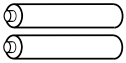
Date of Purchase ____________________
Dealer Purchased From ____________________
Dealer Address ____________________
Dealer Phone No. ____________________
Model No. ____________________
Serial No. ____________________

Accessories



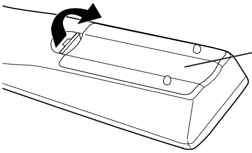
☐ Remote Control
LSSQ0302

☐ Batteries
2 “AA”

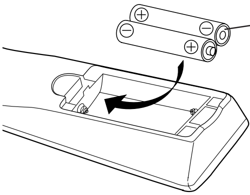


To order accessories, call toll free 1-800-332-5368.

Loading the Batteries



1) Open the cover.



2) Insert batteries as marked.

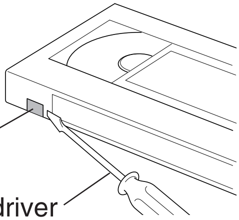
3) Close the cover.

☐ Battery replacement caution

- Do not mix old and new batteries.
- Do not mix alkaline with manganese batteries.

Prevent Accidental Tape Erasure

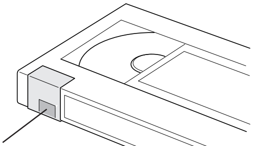
Break off the tab to protect.



Record Tab

Screw driver

To record again.



Cover the hole with cellophane tape.

Record/Playback Time

Only use tapes with the VHS mark in this unit.

Tape Speed Setting	Type of Video Cassette		
	T60	T120	T160
SP (Standard Play)	1 Hour	2 Hours	2 Hours 40 Minutes
LP (Long Play)	2 Hours	4 Hours	5 Hours 20 Minutes
SLP (Super Long Play)	3 Hours	6 Hours	8 Hours

Table of Contents

Initial Setup

Basic Operation

TV Operation

Timer Operation

Advanced Operation

For Your Information

Information (Unit, Cassette, Disc)

Head Cleaning

Playing older or damaged tapes may eventually cause video heads to become clogged.

Head Clog Sensor

During playback this screen appears if clogging is detected. To remove screen, press PLAY on the remote or unit.

VIDEO HEADS MAY
NEED CLEANING
PLEASE INSERT HEAD
CLEANING CASSETTE
OR REFER TO MANUAL

END:PLAY

- **Use "dry" type head cleaning cassette only.** (Part No. NV-TCL30PT is recommended.)
- Follow cleaning tape directions carefully. Excessive use of head cleaning tape can shorten the video head life.
- If head clog symptoms persist, contact your nearest Factory Service Center or authorized Service Center. (See Page 64.)

DST (Daylight Saving Time)

Unit auto adjusts clock for DST (Daylight Saving Time.)

■ **Spring (First Sunday in April)**
DST : ON ➔ Sets clock ahead one hour.
Autumn (Last Sunday in October)
■ DST : ON ➔ Turns clock back one hour.

- If your area does not observe Daylight Saving Time, select DST : OFF (see "Clock" on pages 16 and 17).
- Keep these time changes in mind when programming the unit for timer recordings.

Features for a Quality Picture

Digital Auto Tracking
Continuously analyzes the signal and adjusts for optimum picture quality.

Manual Tracking Control (to reduce picture noise)
Use during Playback and Slow Motion mode to reduce picture noise. Press the 3 or 6 number key on the remote control or CH ▲▼ on the unit until the picture clears up. To return to Auto Tracking, press POWER off, then on again a few seconds later.

V-Lock Control
In Still mode, the 3 or 6 number key on the remote control or CH ▲▼ on the unit operate as a V-Lock control to reduce jitter.

PanaBlack™ Picture Tube (PV-DF2702 only)
This unit uses a PanaBlack™ picture tube for better color reproduction and picture contrast.

Velocity Modulated Scan (PV-DF2702 only)
This advanced circuitry senses video signal transitions from dark-to-light. The black-and-white portions of the signal speed up and slow down as needed, giving you sharp dark-to-light transitions and outstanding edge definition.

3 Line Digital Comb Filter
Provides an extremely accurate means of separating color from black-and-white in the video signal. Three channels of picture data, the filter removes both horizontally and vertically hanging dots, as well as dot crawl.

Specifications

Display	
Picture Tube:	27 inch diagonal pure flat Picture Tube (PV-DF2702) 20 inch diagonal pure flat Picture Tube (PV-DF2002)
VCR	
Video Recording System:	4 rotary heads helical scanning system
Audio Track:	1 track (Normal) 2 channel (Hi-Fi Audio Sound)
Tuner	
Broadcast Channels:	VHF 2 ~ 13, UHF 14 ~ 69
CABLE Channels:	Midband A through I (14 ~ 22) Superband J through W (23 ~ 36) Hyperband AA ~ EEE (37 ~ 64) Lowband A-5 ~ A-1 (95 ~ 99) Special CABLE channel 5A (01) Ultraband 65 ~ 94, 100 ~ 125
FM Radio	
Band range:	87.5 ~ 108.1 MHz
General	
Power Source:	120V AC, 60 Hz
Power Consumption:	Power On Approx. 174 watts (PV-DF2702) Approx. 128 watts (PV-DF2702) Power Off Approx. 3.5 watts
Television System:	EIA Standard NTSC color
Speaker:	2 pieces
Operating Temperature:	5° C ~ 35° C (41° F ~ 95° F)
Operating Humidity:	10 % ~ 75%
Weight:	52 kg (114.4 lbs.) (PV-DF2702) 29 kg (63.8 lbs.) (PV-DF2002)
Dimensions:	760 (W) x 651 (H) x 503 (D) mm 29-7/8" (W) x 25-5/8" (H) x 29-7/8" (D) (PV-DF2702) 604 (W) x 523 (H) x 503 (D) mm 23-3/4" (W) x 20-5/8" (H) x 19-3/4" (D) (PV-DF2002)
Discs played	
(1) DVD-VIDEO disc	5" (12 cm) single-sided, single-layer 5" (12 cm) single-sided, double-layer 5" (12 cm) double-sided, double-layer (one layer per side) 3" (8 cm) single-sided, single-layer 3" (8 cm) single-sided, double-layer 3" (8 cm) double-sided, double-layer (one layer per side)
(2) Compact disc (CD-DA, CD-RW, VIDEO CD)	5" (12 cm) disc 3" (8 cm) disc
Digital audio output:	
Optical digital output:	Optical connector
Pickup:	Wave length: 655 nm (DVD) 790 nm (Video CD/CD) Laser power: CLASS II

Note : Designs and specifications are subject to change without notice.

Disc formats supported by this unit

The unit can play back discs bearing any of the following marks:

DVD
3” (8 cm) disc / 5” (12 cm) disc

Video CD
3” (8 cm) disc / 5” (12 cm) disc

CD, CD-R/W
3” (8 cm) disc / 5” (12 cm) disc

Discs which cannot be played with this unit

- DVD with Region No. other than “1” or “ALL”
- DVD of PAL system
- DVD-ROM
- DVD-R/DVD-RAM
- CD-ROM
- CDV
- CD-G

- **Do not try to play a Photo CD.**

DVD VIDEO is a registered trademark.

Definition of Terms

Angle
Some DVD discs feature scenes simultaneously shot from different angles. The ANGLE button can be used to view the scene from different angles. (ANGLE Indicator lights up on the unit when a scene recorded at different angles is detected.)

Chapter Number
Titles are subdivided into numbered sections. You can quickly search for a favorite scene using these numbers.

DVD
A high-density optical disc on which high-quality pictures and sound have been digitally recorded. DVD incorporates new video compression technology (MPEG II) and high-density recording technology which allow entire movies to be recorded with incredible playback quality.

Playback Control
With Video CD (version 2.0), scenes or information may be selected for viewing or listening from an interactive menu that appears on the TV screen.

Subtitles
Written dialogue which appears at the bottom of the screen.

Time Number
The elapsed play time from the start of a disc or title. Use to quickly find scenes. (May not work with some discs.)

Title Number
For DVD discs with two or more titles, the title is numbered as title 1, title 2, etc.

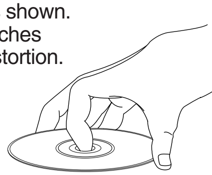
Track Number
Numbers assigned to tracks on Video CDs and CDs to allow specific tracks to be quickly located.

Video CD
CD containing picture and sound with same quality level as video tape. This unit also supports Video CDs with playback control (version 2.0).

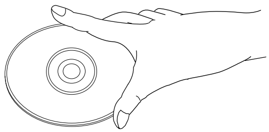
Disc Handling

Handling precautions

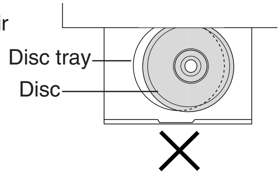
- Only hold disc by edges as shown. Fingerprints, dirt, and scratches can cause skipping and distortion.
- Do not write on label side of disc.



- Never use record cleaning sprays, benzine, thinner, static electricity prevention liquids, or any other solvent.

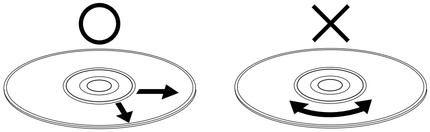


- Be careful not to drop or bend disc.
- Do not place more than 1 disc on disc tray.
- Do not try to close disc tray when disc is not properly placed.
- Always store discs in their proper cases when not in use.



To clean disc surface

With a soft, damp (water only) cloth, gently wipe from the center hole to the outer edge as shown below. (Wiping in a circular pattern will scratch the surface.)



If disc is brought from a cold to a warm environment, moisture may form on the disc

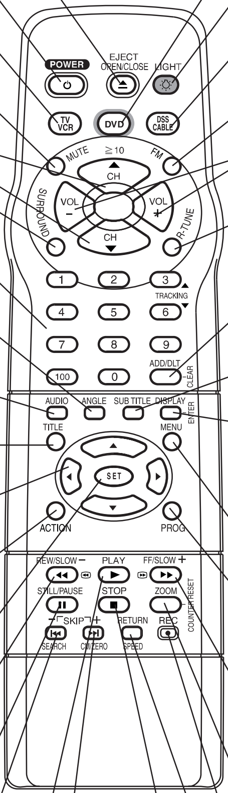
Wipe away moisture with a soft, dry, lint-free cloth before using disc. (See above.)

Improper disc storage

Discs could be damaged if stored or left in areas:
- exposed to direct sunlight.
- that are humid or dusty.
- near heat (i.e. heater, radiator, etc.).

Location of Controls

Remote Control Buttons



EJECT/OPEN/CLOSE
See next page.

POWER
Turn the unit on or off.

TV/VCR
Sets to TV or VCR mode.

MUTE
Mutes the sound instantly.

CHANNEL UP/DOWN
Selects a channel.

SURROUND
Hears a deeper, 3-D sound effect.

NUMBER Keys
Selects a channel directly.

ANGLE
Selects the desired angle in DVD mode.

AUDIO
Selects the desired audio mode.

TITLE
Selects the desired title by number on some DVDs.

SELECT ▲▼◀▶
Control navigation around on-screen menu.

ACTION
Displays Main Menu.

SET
Sets a selected menu.

REW/SLOW-
Rewinds tape and searches reverse scene. Decreases slow motion speed in Still mode.

STILL/PAUSE
Pauses picture in Play mode and frame advance picture in Still mode.

SKIP ⏮/SEARCH
Skips back one chapter or track. Goes to previous menu screen. Goes directly to the desired recording. Locates end point of recording.

PLAY
Begins playback.

SKIP ⏭/CM SKIP/ZERO SEARCH
Skips one chapter or track. Goes to next screen. In Stop mode, goes to the counter "0:00:00". In Play mode, skips over 1 to 3 minutes of tape.

DVD
Sets to DVD mode.

LIGHT
See next page.

DSS/CABLE
Sets the remote to control some basic DDS or Cable box functions.

FM
Receives FM radio signal.

VOLUME UP/DOWN
Adjusts volume.

RAPID TUNE
Displays the last channel you were watching.

ADD/DELETE/CLEAR
Adds or deletes a channel.
Cancels an item on the screen.

SUB TITLE
Selects a different subtitle language.

DISPLAY/ENTER
Displays the TV status and clock.
In DVD mode, displays disc and unit information.
In DSS or CABLE mode, it may be necessary after channel selection.

MENU
Displays DVD menu.

PROGRAM
Displays SET PROGRAM screen. You can set Timer Program and On-Timer.

FF/SLOW+
Fast forwards tape and searches forward scene. Increases slow motion speed in Still mode.

ZOOM/COUNTER RESET
Enlarges specific portions of DVD picture. Resets to "0:00:00" at desired portion of tape.

REC
Records a program.

RETURN/SPEED
Returns to DVD menu screen.
Selects recording speed of tape.

STOP
Stops playback.

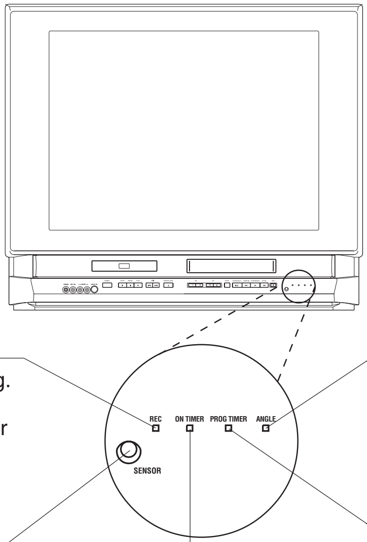
Location of Controls (continued)

Universal Light Tower® Illuminated Remote Control

LIGHT button:
When LIGHT is pressed, (DVD, TV/VCR, DSS/CABLE, CH UP/DOWN, VOL UP/DOWN) buttons will light for 5 seconds for easy button location.
If no button is pressed in 5 seconds, the light goes out to conserve the battery.

EJECT/OPEN/CLOSE button:
When this button is pressed in TV-VCR mode, the tape is ejected.
This button is inoperative if pressed during recording.
If pressed in DVD mode, the disc tray opens or closes.

Indicators on the Front Panel



REC Indicator
Lights up during recording. In Rec Pause or OTR Pause mode, the Indicator flashes.
Pg. 18

Remote Sensor

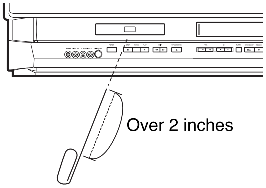
ON-TIMER Indicator
Lights up when the On Timer is set
Pg. 26

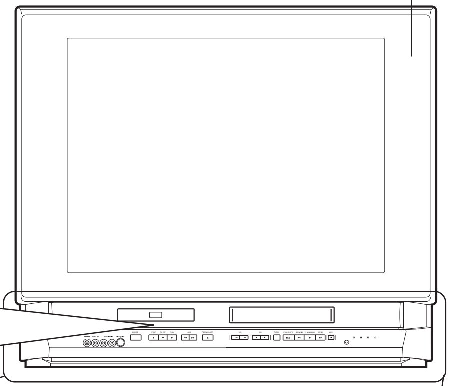
ANGLE Indicator
Lights up when a scene recorded at different angles is detected. (DVD only).
Pg. 49

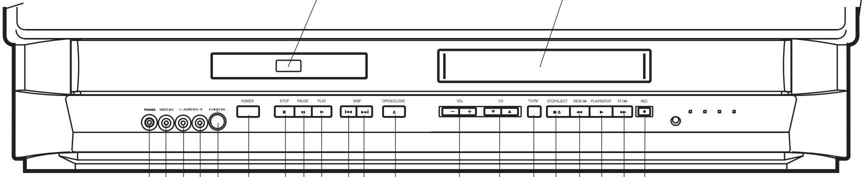
PROG TIMER Indicator
Lights up when the unit is set for Timer Recording. It flashes when a Timer Recording has been set with no tape inserted, the clock is not set, or the tape is in motion.
Pg. 30

Front View of the unit

If the disc cannot be removed...
First, unplug unit.
Then, prepare a rigid wire (e.g. an extended paper clip) and, applying moderate force, insert it straight into the hole at the base of the tray. The tray will eject a little. Now, pull the tray all the way out and remove the disc.







PHONES
Connect an earphone or headphones.

AUDIO/VIDEO IN Connector
Connect from other component.

S-VIDEO IN Connector
Connect from other component with S-Video.

POWER (See page 8.)

STOP (See page 8.)

PAUSE (See page 8.)

PLAY (See page 8.)

SKIP⏮ (See page 8.)

SKIP⏭ (See page 8.)

OPEN/CLOSE (See page 8.)

REC
(See page 8.)

FAST FORWARD/ SEARCH
(See page 8.)

PLAY/REPEAT
(See page 8.)

REWIND/SEARCH
(See page 8.)

STOP/EJECT
(See page 8.)

TV/FM
(See page 8.)

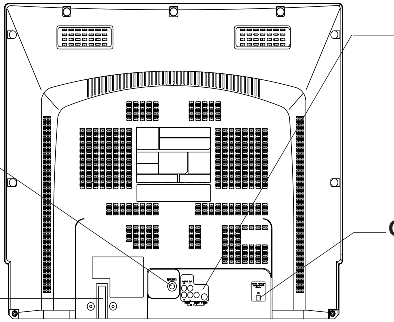
CHANNEL UP/DOWN
(See page 8.)

TRACKING UP/DOWN
(See page 8.)

VOLUME UP/DOWN
(See page 8.)

Location of Controls (continued)

Rear View of the unit



Audio Output Connector (L/R)
Pg. 12

VHF/UHF Antenna Input Terminal
See below.

Optical digital audio output connector
Pg. 13

AC Power Plug
When plugged into an AC outlet, this unit consumes 3.5 W of electric power in OFF condition.

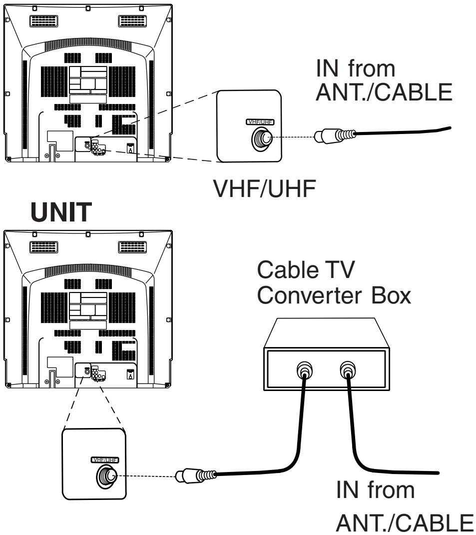
Connections

For ANT./Cable

Connect the cable from Antenna/Cable to the VHF/UHF terminal on the unit.

For DSS/Cable Box

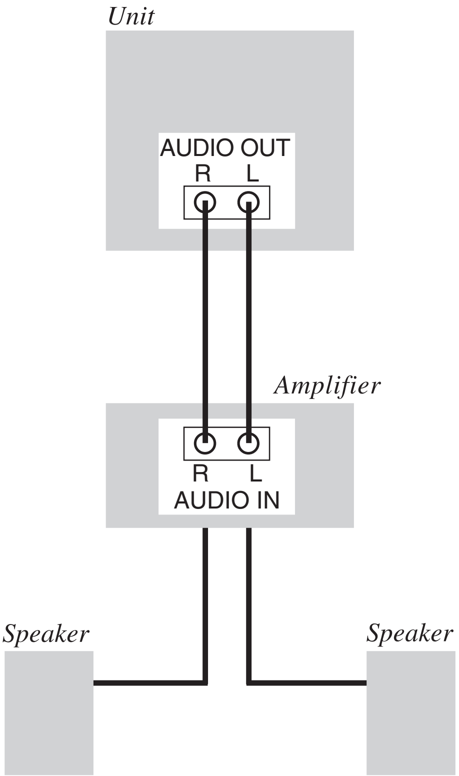
Connect the OUT jack on your cable box to the VHF/UHF terminal on the unit with a RF cable.



WARNING:
Overtightening “Nut type” RF coaxial cables may damage jacks. Finger tighten only.

Audio connections

■ Unit ➔ Amplifier ➔ Speaker



☑ Ready Checklist

☐ Turn down the volume, then turn this unit, as well as other equipment to be connected, off before proceeding with connection.
☐ Do not block ventilation holes of any of the equipment and arrange them so that air can circulate freely.
☐ Read through the instructions before connecting other equipment.
☐ Ensure that you observe the color coding when connecting audio and video cables.

Enjoying digital audio output from the digital audio output connector

Notes on audio output from the optical digital audio output connector

Disc	Sound recording format	Optical digital audio output from connector
DVD	Dolby Digital	Dolby Digital bitstream (1-5.1 ch) or OFF (no output)*1
	Linear PCM (48/96 kHz 16/20/24 bit)	Linear PCM (2ch) (48 kHz sampling/16 bit only)*2 or no output*1
	dts	Bitstream or no output*1
Video CD	MPEG 1	PCM (44.1 kHz sampling)
CD	Linear PCM	Linear PCM (44.1 kHz sampling)

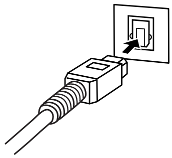
*1 The type of audio output from the connector can be selected by the Settings for DVD Operation. (See page 60.)
*2 Sound having 96 kHz sampling is converted into 48 kHz sampling when it is output from the unit's optical digital audio output connector.

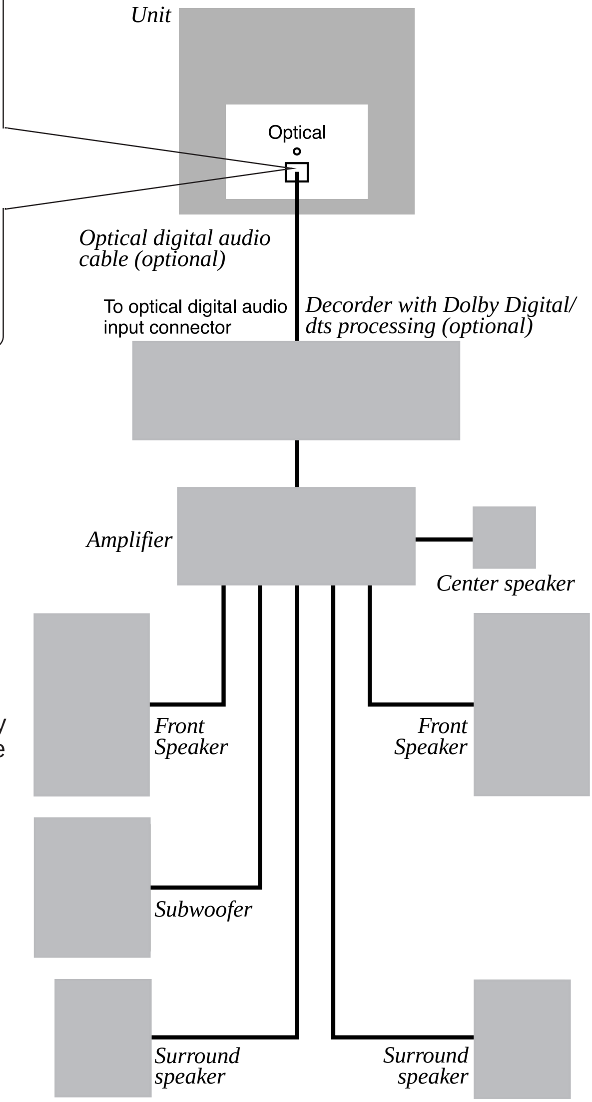
For your reference:
- Dolby Digital is a digital sound compression technique developed by the Dolby Laboratories Licensing Corporation. Supporting 5.1-channel surround sound, as well as stereo (2-channel) sound, this technique enables a large quantity of sound data to be efficiently recorded on a disc.
- Linear PCM is a signal recording format used in CDs. While CDs are recorded in 44.1 kHz/16 bit, DVDs are recorded in 48 kHz/16 bit up to 96 kHz/24 bit.
- If you have a Dolby Pro Logic Surround decoder, you will obtain the full benefit of Pro Logic from the same DVD movies that provide full 5.1 channel Dolby Digital soundtracks, as well as from titles with the Dolby Surround mark. For information on Panasonic or Technics Dolby Pro Logic Surround Sound Decoders please contact your local dealer.

■ Unit ➔ Decoder with Dolby Digital ➔ Amplifier ➔ Speaker
or
dts (digital theater systems)

When DVDs recorded in Dolby Digital or dts are played, Dolby Digital bitstream or dts bitstream is output from the unit Optical digital audio output connector. When the unit is connected to a Dolby Digital decoder or dts decoder, you can enjoy theater-quality audio in your home.
[An optical digital audio cable (optional) is required when an optional Dolby Digital decoder or dts decoder is used.]

Notes on connecting an Optical digital audio cable (optional)
- Firmly connect the cable to the connector





Caution for optical digital audio output connector:
- When connecting an amplifier (with an Optical digital input connector) which does not contain the Dolby Digital or dts decoder, be sure to select “OFF” at “Dolby Digital” and “OFF” at “dts” of the Settings for DVD Operation “AUDIO OUTPUT” (see page 58). Otherwise, any attempt to play DVDs may cause such a high level of noise that it may be harmful to your ears and damage your speakers.
- When a dts decoder is connected, please select “Bitstream” at “dts” of the Settings for DVD Operation “AUDIO OUTPUT”. If “OFF” is selected, there will be no sound. (See page 58).
- Video CDs and CDs can be played as normal.

Note:
- Some dts decoders which do not support DVD-dts interface may not work properly with the unit.

Initial Setup (Ready to Play)

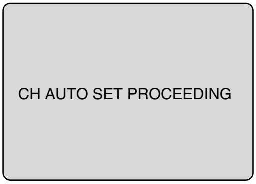
Please make all cable or antenna connections before powering on.

Initial Setup (Ready to Play)

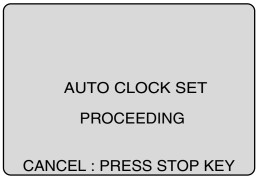
Press TV/VCR on the remote for TV-VCR mode.

1 **Plug the unit power cord into an AC wall outlet.**

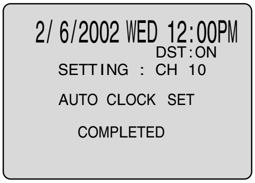
2 **Press Power* on the remote or unit. The unit comes on and auto channel and clock set starts.**



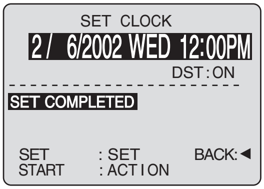
- If you use a cable box, turn it on and set it to the Public Broadcasting Service (PBS) channel in your time zone. If you use a DSS receiver, it must be turned off.

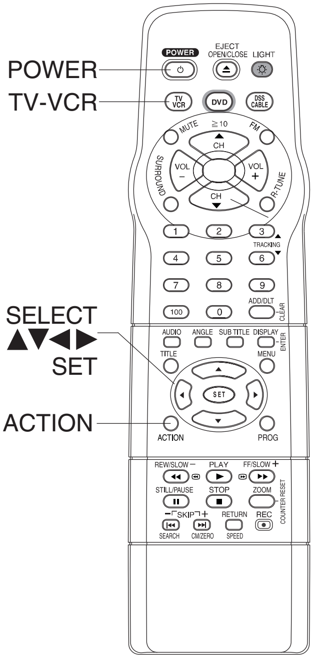


3 **Settings are made automatically. When setup is done, this screen appears.**



If AUTO CLOCK SET IS INCOMPLETE screen appears, set the clock using MANUAL CLOCK SET procedure on next page.





portant: If a remote control button does not work when pressed, press the TV/VCR button on the remote and try the button again.

lanual Clock Set

UTO CLOCK SET was incomplete, manually the clock as follows.

Press ACTION on the Remote to display SET CLOCK Menu screen.

```
SET CLOCK
1/--/----      --:--
                 DST:ON
SELECT MONTH
SELECT :▲ ▼
SET    : SET
END    : ACTION
```

Press ▲ ▼ to select the month and **press SET** set. In the same manner, select and set the date, year, time, and DST. (Daylight Saving Time)

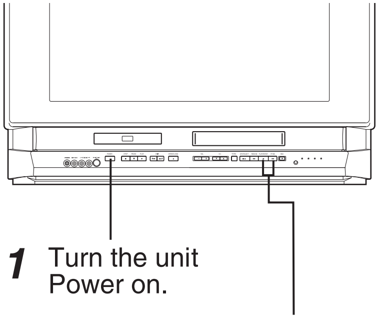
```
SET CLOCK
2/ 6/2002 WED 12:00PM
                 DST:ON
SET COMPLETED
SET     : SET      BACK:◄
START   : ACTION
```

Press ACTION twice to start CLOCK and exit.

Reset all unit Memory Functions

When moving unit to a new location, or if a mistake was made in the Initial Setup section.

- Make sure a tape is not inserted in the unit.



1 Turn the unit Power on.

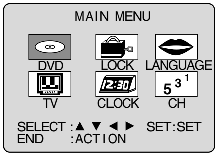
2 Press and hold both **PLAY** and **FF** on the unit for more than 5 seconds.
- The power will shut off.
- Please ignore "NO CASSETTE" warning.

3 Do "Initial Setup" on page 14.

Note to CABLE System Installer
This reminder is provided to call the CABLE (Cable TV) System Installers attention to Article 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

Reset Language, Channels, Clock,

1

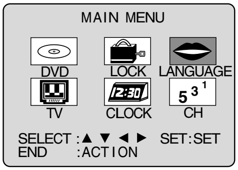


Press ACTION*
to display MAIN MENU.

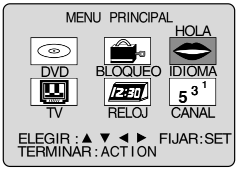
2

■ Language

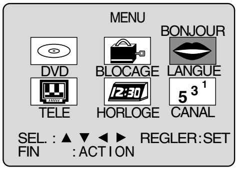
1) **Press ▲▼◀ ▶** to select language icon.



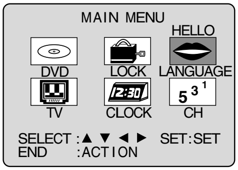
2) **Press SET** repeatedly.



For Spanish



For French

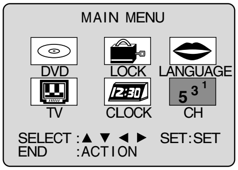


For English

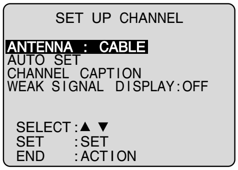
3) **Press ACTION** to exit.

■ Channels

1) **Press ▲▼◀ ▶** to select "CH."



2) **Press SET.**



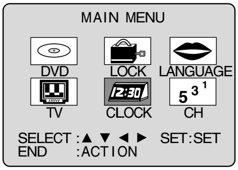
3) **Press ▲▼** to select "ANTENNA," then **press SET** to set your antenna system ("TV" or "CABLE").

4) **Press ▲▼** to select "AUTO SET," then **press SET**.

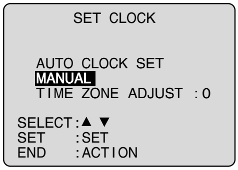
- After Channel Auto Set is finished, Clock Auto Set will be performed.
- If clock is set manually, clock Auto Set will not be performed.

■ Clock

1) **Press ▲▼◀ ▶** to select "CLOCK."



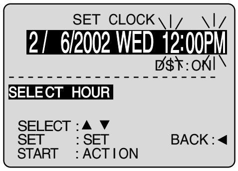
2) **Press SET**.



("TIME ZONE ADJUST" appears only when auto clock is set.)

3) **Press ▲▼** to select "MANUAL," then **press SET**.

(For Auto Clock Set, select "AUTO CLOCK SET," and **press SET**.)



<Example MANUAL CLOCK SET screen>

Continued on the next page.

*Important: If a remote control button does not work when pressed, press the TV/VCR button on the remote and try the button again.

4) **Press ▲▼** and **press SET** to select and set the month, date, year, time, and DST (Daylight Saving Time).

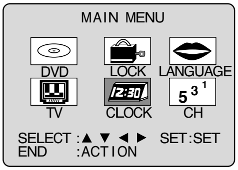
To Make Corrections, repeatedly press ◀ ▶ to move to error, then correct.

5) **Press ACTION** twice to start the clock and exit this mode.

Time Zone Adjust

(Only when Auto Clock is set.)

1) **Press ▲▼◀ ▶** to select "CLOCK."



2) **Press SET**.

SET CLOCK

AUTO CLOCK SET
MANUAL
TIME ZONE ADJUST :0

SELECT :▲ ▼
SET :◀ ▶
END :ACTION

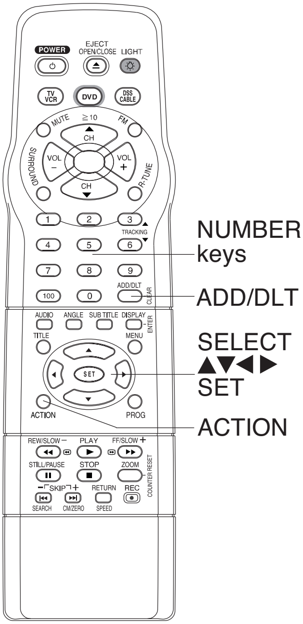
3) **Press ▲▼** to select "TIME ZONE ADJUST" and **press** ◀ or ▶ to subtract or add hour(s) as necessary.

SET CLOCK

AUTO CLOCK SET
MANUAL
TIME ZONE ADJUST :+1

SELECT :▲ ▼
SET :◀
END :ACTION

4) **Press ACTION** twice to exit.



Add or Delete a Channel

To add channel:
Select channel with **number keys** and **press ADD/DLT**.

CHANNEL 08 ADDED

To delete channel:
Select channel with CH▲▼ or **number keys** and **press ADD/DLT**.

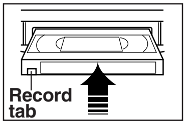
CHANNEL 08 DELETED

Playback a Tape

Ready Checklist

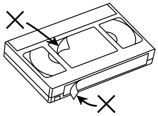
☐ All connections are made.
☐ Your unit is plugged in.

1 **Insert a tape.**



- The unit power comes on automatically.

To prevent tape jam, remove loose or peeling labels from tapes.



2 **Press PLAY*** to play a tape.

- If tape has no record tab (see page 4), auto play begins.

■ **Forward/Reverse scene search**
➔ **Press FF/SLOW+** or **REW/SLOW-**.
➔ **Press** again **or PLAY** to release.

■ **Still (Freeze) picture**
➔ **Press STILL/PAUSE**.
➔ **Press PLAY** to release.

■ **Slow Motion picture**
➔ **Press FF/SLOW+** (increases speed) or **REW/SLOW-** (decreases speed) in Still mode.
➔ **Press PLAY** to release.

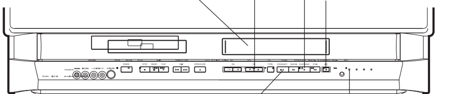
■ **Frame by Frame picture**
➔ **Press STILL/PAUSE** in Still mode.
➔ **Press PLAY** to release.

Notes

- These features work best in SP or SLP mode.
- After the unit is in Still or Slow mode for 3 minutes, it will switch to Stop mode automatically to protect the tape and the video head.

■ **Stop ➔ Press STOP**
■ **Rewind tape ➔ Press REW/SLOW-** in Stop mode
■ **Fast forward tape ➔ Press FF/SLOW+** in Stop mode
■ **Eject tape ➔ Press EJECT** on the remote or **STOP/EJECT** on the unit

Operation using unit buttons



Record On a Tape

1 **Insert a tape with record tab.**

- The unit power comes on automatically.

2 **Press CH ▲▼** or **number keys** to Select Channel.

- For “LINE” input, see bottom of next page.

3 **Press SPEED** to select recording speed (see page 4).

SP = Standard Play
LP = Long Play
SLP = Super Long Play

- Selected speed is displayed.

4 **Press REC** to start recording.

- To edit out unwanted portions, **press STILL/PAUSE** to pause and resume recording.
- You cannot view another channel during recording.

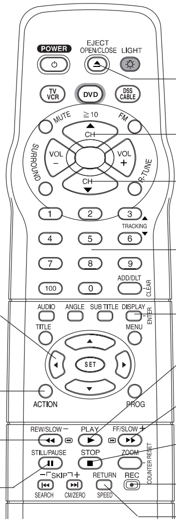
■ **Stop ➔ Press STOP**
■ **One Touch Recording (OTR)**
Press REC repeatedly to set the recording length (30 min - 4 hours.)

Normal Rec → 0:30 → 1:00 → 1:30 → 2:00 → 3:00 → 4:00 → Normal Rec

- The unit stops recording at a preset time.
- PROG TIMER Indicator lights on the unit.

Notes

- **It is not possible to record from DVD/ Video CD/CD to VHS tape using this unit.**
- After the unit has been in Rec Pause mode for 5 minutes, it will stop automatically to protect the tape and the video head.
- The remaining recording time of an OTR can be displayed by pressing DISPLAY.



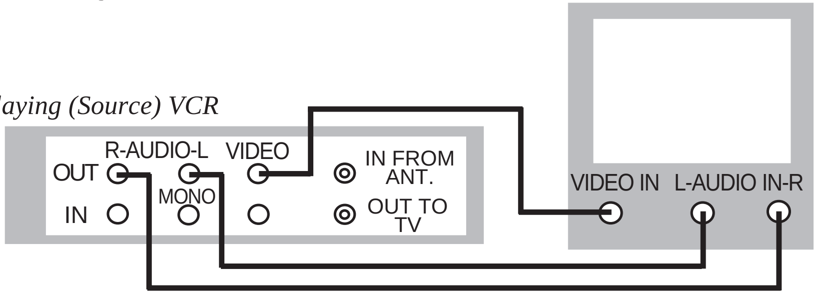
Copy Your Tapes (Dubbing)

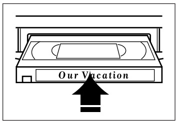
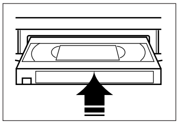
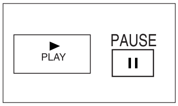
*Important: If a remote control button does not work when pressed, press the TV/VCR button on the remote and try the button again.

Connections you'll need to make

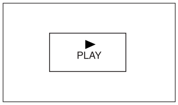
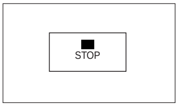
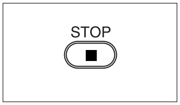
Recording (Editing) unit

Playing (Source) VCR



	Playback (Source)		Recording (Editing) unit	
1		**Insert pre-recorded tape.**		**Insert blank tape with record tab.** • Dubbing tapes protected with Copy Guard will have poor quality results.
2		———		**Select "LINE" mode.** See "Selecting Input Mode" below.
3		**Press PLAY** then **PAUSE** at starting point to put in Standby mode.		**Press REC**, then **Press STILL/PAUSE** immediately to put in Standby mode.

— (Perform operation of steps 4 and 5 on both units at same time.) —

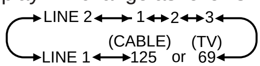
4		**Press PLAY** to start dubbing.		**Press STILL/PAUSE** to start dubbing.
5		**Press STOP** to stop dubbing.		**Press STOP** to stop dubbing.

Caution

- Unauthorized exchanging and/or copying of copyrighted recordings may be copyright infringement.
- Please note that some tapes cannot be dubbed on this unit. Also, it is not possible to dub DVD/Video CD/CD to VHS tape using this unit.

Selecting Input Mode

Method 1:
Press CH ▲▼. The display will change as follows.



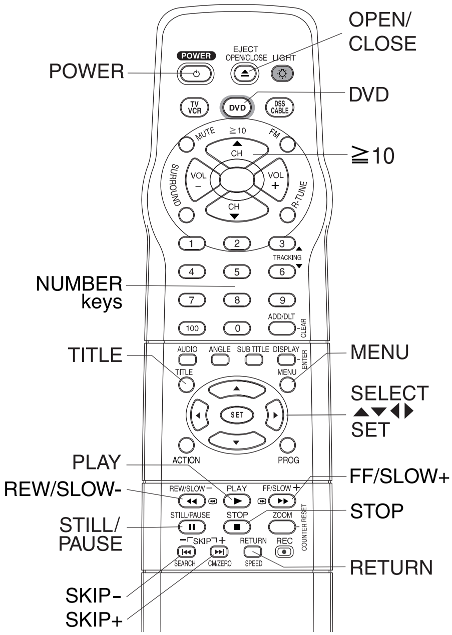
Method 2:
a Press ACTION for MAIN MENU.
b Press ▲▼◀ ▶ to select "TV", then **press SET** for SET UP TV screen.
c Press ▲▼ to select "INPUT SELECT," and then **press SET** to select "TUNER," "LINE 1" or "LINE 2."
d Press ACTION twice to exit this mode.

Basic Operation

Basic DVD Operation

☑ Ready Checklist

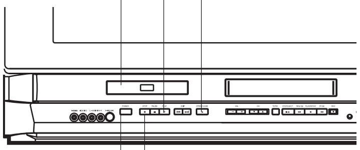
- ☐ All connections are made. (See page 11.)
- ☐ Your unit is plugged in.
- ☐ If unit is connected to an audio amplifier, turn the stereo system's power on.



Operation using unit buttons

4 Press PLAY. 3•7 Press OPEN/CLOSE.

3 Insert disc.



1 Press POWER 6 Press STOP.

*1 Interactive DVD...
May include multiple camera angles, stories, etc.

*2 Video CD with playback control...
Particular scenes or information can be interactively selected from a menu that appears on the screen.

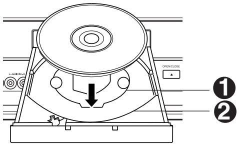
1 Press POWER* on the remote or unit.

2 **Press DVD** to select DVD mode.

- If a disc is already inserted, go to step 4. (Depending on the disc, playback may start automatically.)

3 Insert a disc.

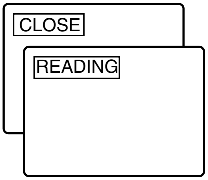
1) **Press OPEN/CLOSE**.
2) Place disc into disc tray.



- Hold disc by its edges only (page 7) with printed side up and use guides to place into tray. Use ❶ 3"(8 cm) or ❷ 5" (12 cm) disc.

4 **Press PLAY** to start play.

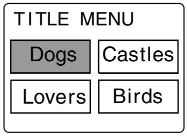
Disc tray closes automatically.



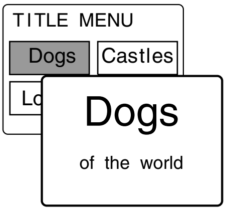
- You may also close the tray by **pressing OPEN/CLOSE**.
- Data reading time differs with each disc.

If an interactive DVD*1 or a Video CD with playback control*2 is used and a TITLE MENU appears, go to step 5.

<Example>



5



Press ▲▼◀ ▶ or **number key(s)** (see below) to select title and **press SET** to play.

Using number key(s) starts play automatically.

<Example>

<Example>	1 digit number	1 ••• 1
	2 digit number	12 ••• ≧10 1 2
	3 digit number	123 •••100 1 2 3

Press SKIP ▶▶I or I◀◀ to go to next or previous menu screen.

- SKIP function not available with all discs. Please refer to disc jacket for operation information.

To return to MENU (play stops)
Press TITLE, **MENU**, or **RETURN**. (DVD)
Press RETURN. (Video CD)

6 **Press STOP** to stop play.

7 **Press OPEN/CLOSE** to eject the disc.

*Important: If a remote control button does not work when pressed, press the DVD button on the remote and try the button again.

■ Forward/Reverse rapid scene search

➔ **Press FF/SLOW+** or **REW/SLOW-** during play.

➔ **Press PLAY** to release.

- Starting forward/reverse search during play started from menu on Video CDs may recall menu.
- Search speed, slow at first, increases with each additional press of the button up to 5 levels.

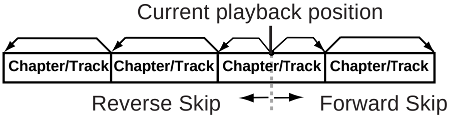
■ Forward/Reverse Chapter/Track Skip

➔ **Press SKIP ▶▶|** or **|◀◀** during play.

Each **press skips** a chapter (DVD) or track (Video CD/CD).

Pressing |◀◀ SKIP once midway through a chapter/track returns to start of that chapter/track. Each additional press skips back one chapter/ track.

- **Pressing SKIP ▶▶|** or **|◀◀** during play started from menu on Video CDs may recall menu.



■ Still (Pause) Picture

➔ **Press STILL/PAUSE** during play.

➔ **Press PLAY** to release.

- **DVD/Video CD :** The unit will enter Still picture mode.
- **CD :** The unit will enter Pause mode.

■ Frame by Frame picture (DVD/Video CD)

➔ **Press STILL/PAUSE** in Still mode.

➔ **Press PLAY** to release.

- Each press advances picture one frame.
- Hold down for consecutive frame advance.
- Whether pictures are advanced by “FRAME” or “FIELD” is selected automatically (see page 61).

■ Slow Motion picture (DVD/Video CD)

➔ **Press FF/SLOW+** or **REW/SLOW-** (DVD only) in Still mode.

➔ **Press PLAY** to release.

- Slow motion speed, slow at first, is increased with each additional press of the button up to 5 levels.
- Reverse slow motion is not available for video CDs.

- When ⊘ appears on the screen while a button is being operated, it means that the corresponding operation is prohibited by the unit or the disc.

RESUME function

The unit memorizes the point where STOP is pressed (▶ flashes on screen).
Press PLAY to resume play from this point.
Pressing STOP again or opening the tray cancels RESUME, however, RESUME is not canceled when power is turned off and on.

- RESUME works only with discs for which elapsed play time is displayed during play.

Auto-Power Off function

Power turns off after unit has been in Stop mode (DVD) for about 5 minutes.

Enjoy Video CDs featuring playback control without using menus (Video CDs only)

1. Do steps 1-4 (previous page).
   When menu appears, **press STOP**.
2. **Press number key(s)** to select desired track (play begins).
   - Check disc for track numbers.
   - Press “1” to start at beginning of disc.

To Resume Menu use,
Press STOP, and **press PLAY**, the menu screen will be displayed.
Now, go to step 5 (previous page).

Notes

- Please read the disc jacket for operation information.
- If a single sided disc is placed in upside down, “PLEASE CHECK THE DISC,
  AND FOR STAINS OR SCRATCHES ON DISC” is displayed.
- Remove disc and press unit POWER off when not in use.
- Disc continues to rotate with menu displayed even after play is done. Press STOP to clear menu display when finished with menu.

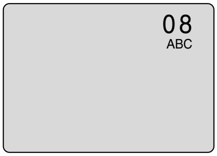
*Important: If a remote control button does not work when pressed, press the TV/VCR button on the remote and try the button again.

1 Press POWER* on the remote or unit.

Ready Checklist

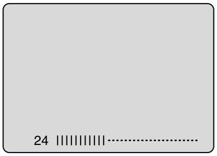
☐ All connections are made. (See page 11).
☐ Your unit is plugged in.

2

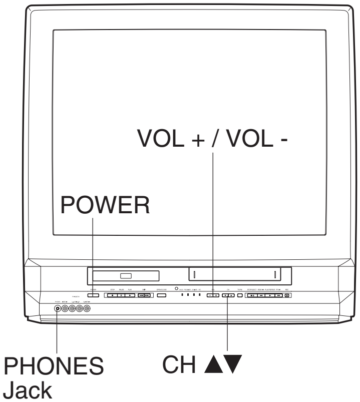


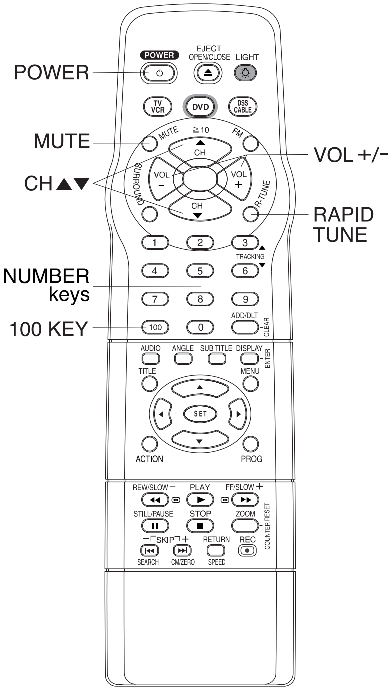
Use CH ▲▼ or **number keys** to select a channel.

3



Press VOL + or **VOL -** to adjust volume.





Using the 100 key

When selecting CABLE channels 100 to 125 with the number keys, first press the 100 key, and then enter the remaining two digits.

Rapid Tune

Press R-TUNE to display the last channel you were watching.

Audio Mute

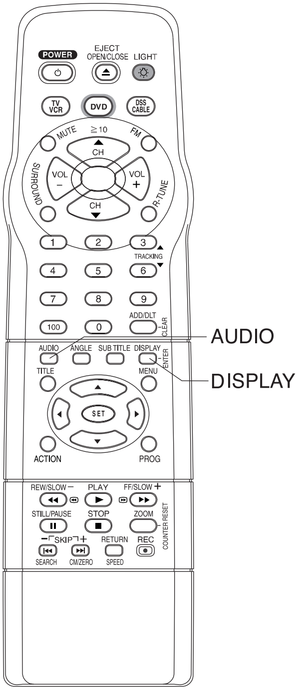
Press MUTE to instantly mute the sound.
Press again to restore the previous sound level.

Phones

Connect an earphone (not supplied) or headphones (not supplied) to the Phones Jack.

MTS Broadcast/TV Stereo System

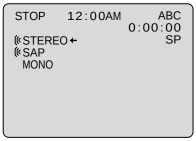
Equipped with dbx® -TV Noise Reduction for true MTS reproduction. dbx® -TV Noise Reduction is required for good stereo separation and audio fidelity. dbx® is a registered trademark, and is licensed by dbx® Technology Licensing.



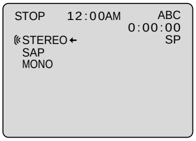
Receivable Broadcast Types

The following are possible audio broadcast types and on-screen displays. The signal being received is indicated with an " ((" mark while the selected audio mode is indicated with an arrow. To change the audio mode for these broadcasts, see the "Select Audio Mode for TV Viewing" section (below.)

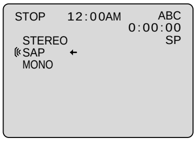
Press DISPLAY to display
the broadcast signal being received.



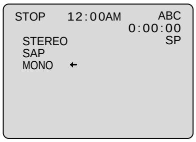
MTS Stereo and SAP broadcast
Multi-channel Television Sound Stereo (main language) and Secondary Audio Program (sub language) broadcasts are being received simultaneously.
Select the STEREO or SAP audio mode.



MTS Stereo broadcast
Multi-channel Television Sound Stereo broadcast. Select STEREO audio mode.
- If stereo broadcast is weak and the display flickers, select MONO audio mode for possibly better results.



SAP broadcast
Secondary Audio Program (sub language).
Select SAP audio mode for the sub language.

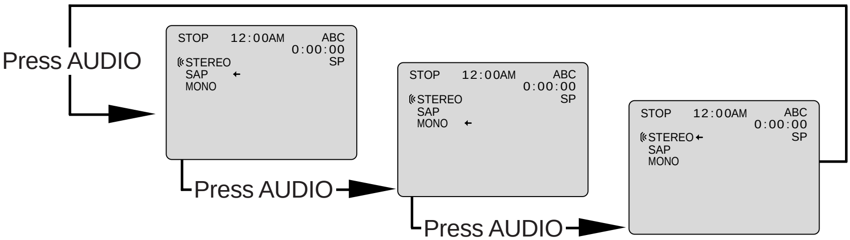


MONO broadcast
Normal monaural sound broadcast.

Audio Mode for TV Viewing

Press AUDIO to select the desired audio mode as described above.
(Arrow shows selection.)
- Each press of AUDIO will change the audio mode as shown below.
- "SAP" is selected with first press of AUDIO.

< Example >



TV Operation

Closed Caption System

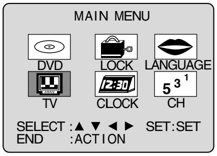
Closed Caption is ...

This multi-use system not only allows the hearing impaired to enjoy selected programs, but also makes useful information from TV stations available to everyone.

Closed Caption Mode Feature

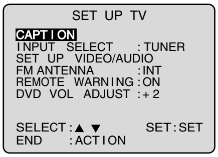
1 **Press ACTION*** to display MAIN MENU.

2



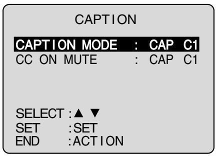
1) **Press ▲▼◀ ▶** to select "TV."
2) **Press SET** to display SET UP TV screen.

3

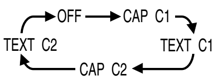


1) **Press ▲▼** to select "CAPTION".
2) **Press SET** to display CAPTION screen.

4



1) **Press ▲▼** to select CAPTION MODE.
2) **Press SET** repeatedly to select mode. (See left.)



5 **Press ACTION** three times to return to the normal screen.

Recording and Playing Back a Closed Caption/ Text Program

Record : Record normally. Closed Caption/Text signal, if present, is recorded automatically.

Playback : Start playback. Do above steps to select desired caption mode.

Closed Caption Mode Selections

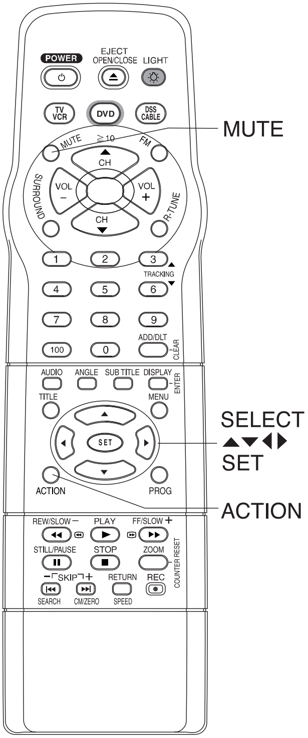
Caption Mode: CAP C1 or C2
A narration of selected TV programs is displayed.
Check TV program listings for CC (Closed Caption) broadcasts.

Caption Mode: TEXT C1 or C2
The lower half of the screen will be blocked out. When the TV station broadcasts information, such as program listings, it will appear in this space.

Caption Mode: OFF
Closed Caption /Text narration will not be displayed.

NOTE :
The closed caption or text signal may be broadcast over C1, C2, or both.
Also, text contents can vary so you may wish to try different settings.

*Important: If a remote control button does not work when pressed, press the TV/VCR button on the remote and try the button again.

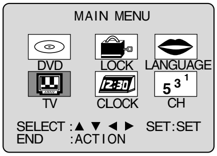


Caption On Mute Feature

Closed Caption narration, if available, is displayed when MUTE button is pressed for silence.

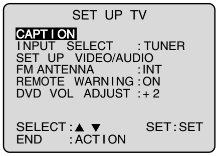
1 **Press ACTION** to display MAIN MENU.

2



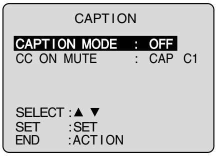
1) **Press ▲▼◀▶** to select "TV."
2) **Press SET** to display SET UP TV screen.

3



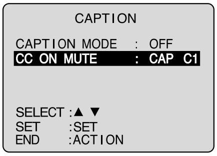
1) **Press ▲▼** to select "CAPTION".
2) **Press SET** to display CAPTION screen.

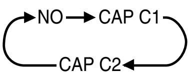
4



1) **Press ▲▼** to select CAPTION MODE.
2) **Press SET** repeatedly to select "OFF."

5





1) **Press ▲▼** to select CC ON MUTE.
2) **Press SET** repeatedly to select desired mode.

- Each press of **SET** will change the display as shown left.
- The caption may be broadcast over CAP C1 or C2.

6 **Press ACTION** three times to return to the normal screen.

7 **Press MUTE** to mute the sound and display closed captioning.
- To cancel, press MUTE again.

Note

- When a disc supporting closed caption is used, the subtitle and the closed caption may overlap. In this case, turn the subtitle or caption on mute mode off. (See page 48.)

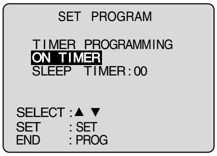
TV Timer Features

ON-TIMER with Alarm

This unit can be set to automatically power on in one of 4 modes (TV, VCR Playback, FM radio, or DVD/Video CD/CD.) You can also combine the On-Timer with a one minute alarm that gradually increases in volume.

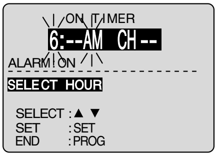
1 **Press PROG*** to display SET PROGRAM screen.

2



1) **Press ▲▼** to select "ON TIMER."
2) **Press SET** to display ON TIMER screen.

3



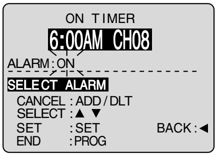
1) **Press ▲▼** to select desired settings.
2) **Press SET** to set the ON-TIMER TIME or ON-TIMER mode.

- Make sure a tape is inserted if Playback mode is selected.
- Make sure a disc is inserted if DVD (DVD/Video CD/CD) mode is selected.
- See "FM Radio" on pages 28 and 29 for instructions on how to preset FM stations.

- ON-TIMER mode selection order

CH01 → CH02 — CH03 ····· CH125 → VCR → FM1 ····· FM8 — FM9 — DVD → CH01

4



Press ▲▼ to select ALARM "ON" or "OFF."

When "ON" is selected,
an alarm will gradually increase in volume for one minute or until canceled by pressing any button (including VOL + -).

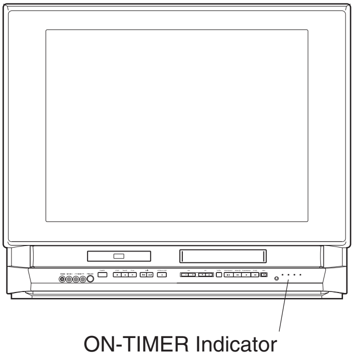
To Make Corrections,
use ▲▼ and ◄► to move back and correct.

5 **Press PROG** to set ON TIMER.
- "ON TIMER SET" is displayed.
- ON-TIMER Indicator lights up on the unit.

To Cancel ON-TIMER set,
Repeat steps **1** and **2**. Then, **press ADD/DLT** to clear the time in step **3**. Now, **press PROG** to end.
"ON TIMER END" briefly appears on-screen.

Ready Checklist

☐ The clock is set to correct time.

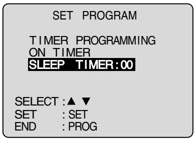


Sleep Timer

This unit can be set for auto power off.

1 **Press PROG** to display SET PROGRAM screen.

2



1) **Press ▲▼** to select SLEEP TIMER.
2) **Press SET** repeatedly to select the desired time.

SLEEP TIMER 30 → 60 → 90 → 00 (→ 30)

To cancel,
press SET repeatedly until 00 appears.

3 **Press PROG** to return to the normal screen.
- **Pressing DISPLAY** with sleep timer set displays remaining time.

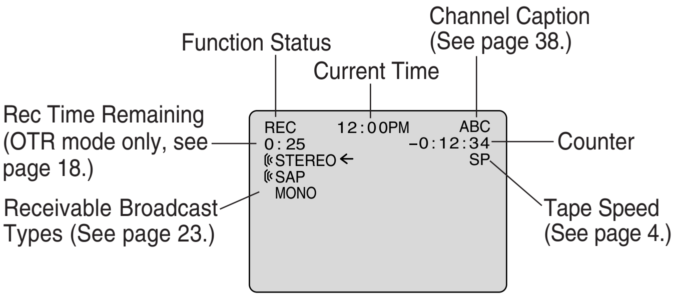
Note

If no button on the remote or unit (including a button used to turn off the alarm) is pressed within 60 minutes after unit turns itself on, it will turn itself back off.

*Important: If a remote control button does not work when pressed, press the TV/VCR button on the remote and try the button again.

TV/VCR Status & Clock Display

Press DISPLAY
to display or remove the overlay.

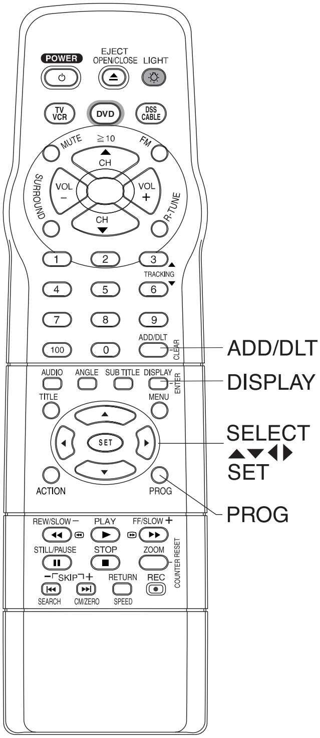


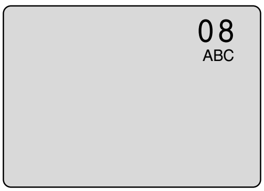
Blue Screen Display

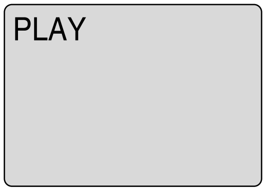
Whenever a blank section of a tape comes up in Play mode, or when the selected channel has no broadcast signal with the Weak Signal Display Feature set to "OFF" (see page 39), the screen will turn solid blue.

Channel & Function Display

When a function button is pressed (PLAY, FF, etc.) or you change channels, the unit mode or channel number will be displayed. (Some station names may also appear if Channel Caption is set. See page 38.)







FM Radio

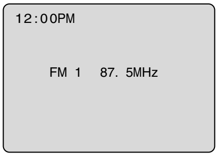
FM Radio is ...

This unit has an FM radio with built-in antenna, 9 station preset, and a band range of 87.5 ~ 108.1 MHz. You can even set the On-Timer (page 26) to wake up to your favorite radio station.

FM Radio Setup

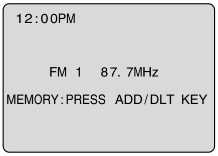
1 **Press FM** on the remote or **press TV/FM** on the unit to display FM radio mode.

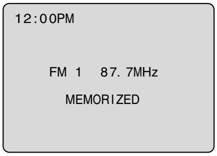
2



Press a number key* (1~9) to select the FM preset number.

3





1) **Press CH ▲▼** to select the desired radio station. (Each press changes frequency 200 KHz.)

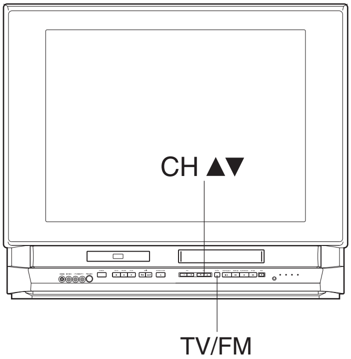
2) **Press ADD/DLT** to set the radio station.

Hold down CH ▲ or **▼** for a few seconds, then release to quickly scan for FM stations in your area.

- To cancel, **press CH ▲** or **▼** while in search mode.

To Make Corrections, select station with a number key, then do step **3** again.

To exit FM mode, press TV/VCR or **DVD** on the remote or **TV/FM** on the unit.

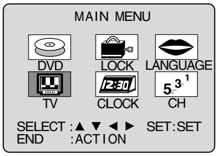


FM Antenna Setup

Make sure FM tuning is done correctly (see FM Radio Setup).

1 **Press ACTION** to display MAIN MENU.

2

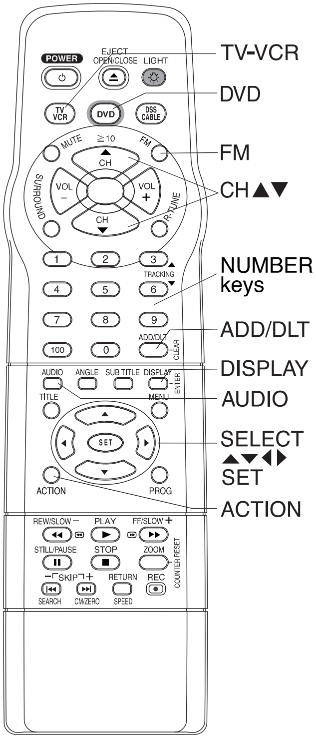


1) **Press ▲▼◀ ▶** to select "TV."

2) **Press SET** to display SET UP TV screen.

Continued on next page.

*Important: If a remote control button does not work when pressed, press the FM button on the remote and try the button again.



3

```
SET UP TV
CAPTION
INPUT SELECT      : TUNER
SET UP VIDEO/AUDIO
FM ANTENNA        : INT
REMOTE WARNING : ON
DVD VOL ADJUST : +2

SELECT : ▲ ▼       SET : SET
END     : ACTION
```

1) **Press ▲▼** to select FM ANTENNA.
2) **Press SET** to select "INT (INTERNAL)" or "EXT (EXTERNAL)" whichever sounds the best.

■ **For cable TV users ➔ "INT"**
■ **For antenna users ➔ "EXT"**

4 **Press ACTION** twice to end setup.

Using FM Radio

1 **Press FM** on the remote or **press TV/FM** on the unit to display FM radio mode.

2

```
12:00PM

FM 1    87. 5MHz
```

Press a number key (1~9) to select a preset FM number (see FM Radio Setup on page 28).

To exit FM mode, press TV/VCR or DVD on the remote or **TV/FM** on the unit.

Audio Mode for FM Radio

```
12:00PM
((STEREO ←
  MONO
    FM 1    87. 7MHz
```

Press AUDIO repeatedly to select "STEREO" or "MONO" in FM Radio mode.

Notes

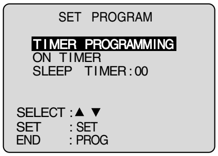
- FM radio cannot be recorded on a Video cassette.
- You may get better reception by repositioning the unit.
- You cannot select FM Radio mode during playback or record, or while a blue back screen (PROG, ACTION, MENU) is displayed.
- Once stations are set, the selected station and current time are displayed when FM Radio mode is entered.
  To remove time, press DISPLAY. If DISPLAY is pressed again, the unit status screen appears.

Timer Recording

You can set up to 8 programs to be recorded while you are away.

1 **Press PROG*** to display SET PROGRAM screen.

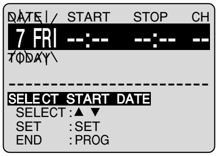
2



1) **Press ▲▼** to select TIMER PROGRAMMING.
2) **Press SET** to display screen.

- If a program is already in memory, **press ▲▼**, and **SET** to select an unused program number.

3

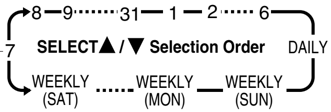


Press ▲▼ to select and **SET** or ◀ ▶ to set the recording DATE.

- 1~31 = One time
- DAILY = MON~FRI
- WEEKLY SUN~SAT = Same time once a week

Example

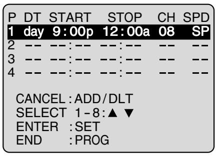
Today's Date



Repeat step 3 to set:

- start time, stop time
- Channel (or LINE for outside source)
- Speed (SP, LP, SLP)

4



Press PROG to end the program.

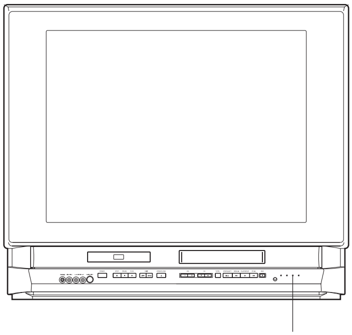
To Enter More Programs, press ▲▼ to select and **SET** to set a blank program number, and then repeat step 3.

5 **Press PROG** twice to exit this mode.

- If you're using a cable box, make sure that it is tuned to the desired channel and the power is left on for timer recording.
- PROG TIMER Indicator lights up on the unit.

Ready Checklist

- ☐ All connections are made.
- ☐ Your unit is plugged in.
- ☐ The clock is set to correct time.
- ☐ The tape is long enough.
- ☐ The record tab is in place.



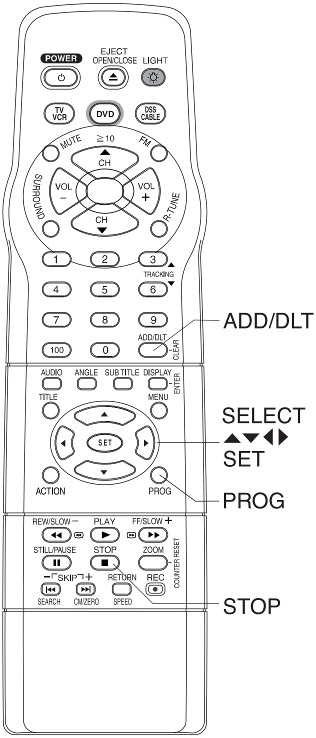
PROG TIMER Indicator

*Important: If a remote control button does not work when pressed, press the TV/VCR button on the remote and try the button again.

Cancel a Timer Recording: (Recording is in progress)

Hold down STOP for a few seconds to cancel the Timer Recording.

- Any future daily or weekly recordings will be performed as programmed.



Review, Replace or Clear Program Contents : (Recording is not in progress)

1 **Repeat steps 1 and 2 on page 30.**

2

```
P  DT  START    STOP    CH  SPD
1  day   9:00p12:00a  08   SP
2   8  10:00a12:00p125     SP
3  10   8:00p  9:00p  10   SP
4  SU   9:00p10:00p  L1    LP

 CANCEL :ADD/DLT
 SELECT 1-8:▲ ▼
 ENTER  :SET
 END    :PROG
```

Press ▲▼ to select the desired program.

3

To Replace program...

```
DATE      START    STOP    CH
 8 SAT   9:00P 12:00A     08
TODAY                     SLP
-----------------------------
SELECT START DATE

 SELECT:▲ ▼
 SET   :SET          BACK:◀
 END   :PROG
```

1) **Press SET** to display.
2) **Press ▲▼** to select and **press SET** or ◀▶ to set new program contents.
3) **Press PROG**.

To Clear program...

```
P  DT  START    STOP    CH  SPD
1  --  --:--  --:--   --   --
2   8  10:00p12:00a125     SP
3  10   8:00p  9:00p  10   SP
4  SU   9:00p10:00p  L1    LP

 SELECT 1-8:▲ ▼
 ENTER  :SET
 END    :PROG
```

Press ADD/DLT.

4 **Press PROG** twice to exit this mode.

Notes

- 2 minutes before Timer recording is performed, “PLEASE PREPARE FOR TIMER REC” appears and/or the PROG TIMER Indicator flashes.
  Be sure a cassette with record tab is loaded and the unit is in Stop mode.
- If the start times of two programs overlap, the lower numbered program will have priority.
- If the start time for a Timer Recording comes up during a normal recording or One Touch Recording (page 18), the Timer Recording will not be performed.
- If there is a power interruption of more than one minute, the recording may not be performed or continued.
- If “INCOMPLETE” appears after all items have been set, check all entries and make necessary corrections.

Cable Box Universal Remote Control Feature

Universal Remote Control is...

The Remote Control may be set up to control some basic DSS or Cable box functions.

The Universal Remote Control Setup

1 Find your DSS box or Cable box Brand Code Number from one of the charts on the next page.

2 Setup remote.

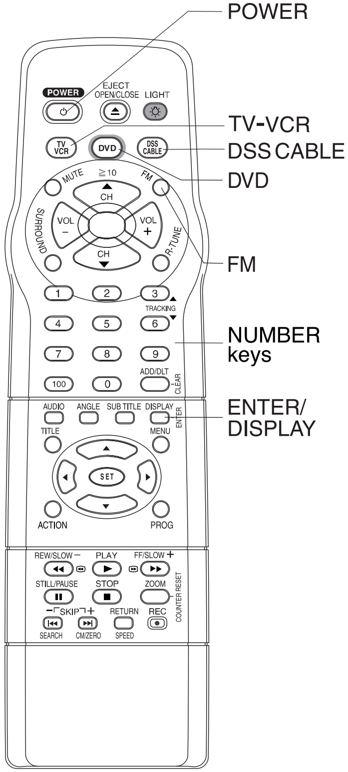
Hold down DSS CABLE and **press number keys** to enter code.

- If code number is 100 or greater, e.g., press 1 - 0 - 2 for 102.

3 Confirm code entry.

Press POWER* to turn selected unit ON or OFF.

- See below for controllable functions in each mode.



Notes

- Please repeat the Universal Remote Control Setup after replacing remote control batteries.
- The remote control will not operate all DSS receivers or Cable Boxes made by the manufactures listed. If you get no results, your particular brand cannot be controlled.

Using the Universal Remote Control (Available Buttons / Functions)

Once the remote control has been properly set up, you can select TV-VCR, FM, DVD, DSS or CABLE mode depending on which functions you wish to control.

Press TV/VCR, FM, DVD or DSS CABLE on the remote control to select the desired mode. (See below for buttons available in each mode.)

Set to TV/VCR, FM, DVD:

All TV functions, as well as functions of TV-VCR, FM, or DVD.

Set to DSS CABLE:

- Basic VCR functions, e.g. PLAY, REC, etc.
- CABLE/DSS function, e.g. POWER, ENTER, NUMBER keys (except 100 key), CH UP/DOWN.

*Important: If a remote control button does not work when pressed, press the TV/VCR, DVD, FM button on the remote and try the button again.

DSS Brand Code Numbers

Brand	Code
Toshiba	90
Hitachi/ Hughes	91, 99
Primestar	92
Drake	93
Magnavox	94, 95
Uniden	94, 95
Optimus	94, 95
Panasonic	96
ProScan	97
RCA	97
SONY	98, 105

Cable Box Brand Code Numbers

Brand	Code
Archer	44, 06, 01, 120, 05, 63, 126
Cableview	29, 09, 01, 63, 120, 44, 42, 30, 52, 04, 124, 126
Citizen	44, 52, 30, 63, 42, 04, 124, 126
Curtis	08, 09, 25, 61, 53, 87
Century	44, 51, 75, 59, 126
Cabletenna	29, 09, 01, 63, 120, 44, 126
Cable Cinema	29, 09, 01, 63, 120, 44, 126
Diamond	29, 09, 01, 63, 120, 44, 126
Eagle	62, 40, 22, 13, 58, 20, 26, 107
Eastern	28, 29, 130
Explorer	08, 09, 25, 61, 53, 87
Gemini	30, 04, 124
General Electric	01, 57, 120
General Instruments	01, 84, 83, 34, 03, 02, 04, 55, 65, 66, 67, 68, 120, 106, 121, 122, 115, 117, 118, 124
Gerrard	44, 51, 75, 59
GC Electronics	44, 42, 63, 29, 30, 52, 04, 124, 126
Hamlin	41, 14, 15, 28, 102, 104, 103, 130
Hitachi	31
Jerrold	01, 84, 83, 34, 03, 02, 04, 55, 65, 66, 67, 68, 120, 106, 121, 122, 115, 117, 118, 124
Jasco	30, 04, 124
Macom	31
Magnavox	26, 112
Matsushita	17, 16, 08, 87, 109
Movietime	32, 39, 42, 44, 126, 38, 40
Maestro	74, 35
NEC	40, 19, 38, 32
NSC	40, 19, 38, 32
Novavision	08, 09, 25, 61, 53, 87
Next Level	01, 84, 83, 34, 03, 02, 04, 55, 65, 66, 67, 68, 120, 106, 121, 122
Oak	46, 11, 129, 101
Oak Sigma	46, 11, 129, 101
Panasonic	17, 16, 08, 87, 109
Philips	23, 24, 20, 13, 07, 50, 128, 129
Pioneer	06, 05, 12
Pulsar	04, 42, 63, 44, 30, 52, 124, 126
Quest	06, 05, 12
Radio Shack	44, 51, 75, 59, 126
RCA	17, 16, 08, 87, 109
Realistic	44, 51, 75, 59, 126
Recoton	44, 51, 75, 59, 126
Regal	41, 14, 15, 28, 102, 104, 103, 130
Regency	28, 29, 130
Rembrandt	44, 42, 63, 29, 01, 32, 39, 120, 126
Samsung	42, 06, 32, 05, 40
Scientific Atlanta	08, 09, 25, 61, 53, 87
Sheritech	27
Signal	26, 112
SL Marx	42, 06, 32, 40, 43, 44, 52, 63, 126
Sprucer	17, 16, 08, 87, 109
Standard Components	32, 39, 42, 44, 126
Stargate	04, 42, 32, 40, 63, 44, 30, 52, 06, 124, 126
Sylvania	19, 18
Teknika	74, 35
Telecaption	77, 127
Teleview	40, 19, 38, 32, 42, 06
Texscan	19, 18
Tocom	34, 33, 01, 42, 66, 120
Toshiba	36
Unika	44, 42, 63, 29, 01, 126, 120
Universal	52, 43, 44, 63, 42, 126
Viewstar	62, 40, 22, 13, 58, 20, 26, 107
Videoway	07, 23, 50, 129
Vidtek	64
Zenith	07, 23, 50, 129

Notes

- In DSS or CABLE mode, it may be necessary to press ENTER after pressing number keys for channel selection.
- In DSS or CABLE mode, POWER, CH Up/Down, Number Keys, ACTION, PROG, DISPLAY/ENTER, SEARCH/SKIP-, R-TUNE, SELECT, SET, CM SKIP/ZERO/SKIP+, COUNTER RESET/ZOOM, ANGLE, AUDIO, TITLE, SUB TITLE, MENU, or ADD/DLT are not available. Press TV/VCR, FM, DVD to use these functions.
- Depending on your DSS receiver or Cable box brand, some of the functions listed may not be remote controllable.
- Some DSS receiver or Cable box brands require you to turn on the power manually.
- Due to changes in infra-red commands used by manufacturers, some brands have several codes. If your unit does not respond to the first code, please try the next one.

Search System is ...

Each time a recording is made, an invisible index mark is placed on the tape.
When timer recordings are made, program index and information are also included.
These index marks can be used to access or scan recordings.

Index Search

Go directly to the desired recording.

1

INDEX SEARCH

ENTER INDEX NUMBER:1
USING 1-9 KEYS

FORWARD SEARCH:FF
REVERSE SEARCH:REW
NEXT : SEARCH
EXIT : STOP

Press SEARCH* in Playback or Stop mode to display INDEX SEARCH screen, and then **press NUMBER Keys** to select the recording number.

- To calculate number, see below.

Press FF or **REW** to start search.

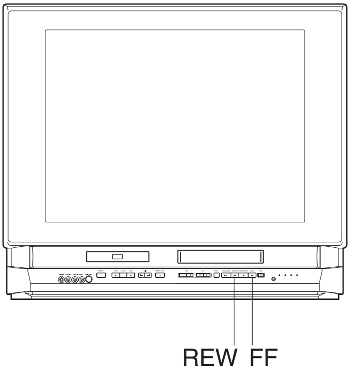
2

INDEX SEARCH

FORWARD SEARCH:FF
REVERSE SEARCH:REW

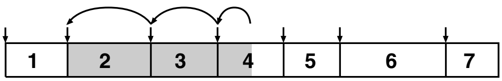
Play begins at search end. To search forward or back 1 index, **press FF** or **REW** while screen left in displayed (10 sec.).

To cancel, press PLAY or **STOP.**

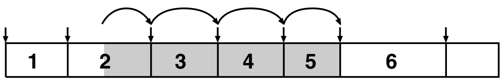


■ To calculate the Index Number

Example 1:
To go to rec. 2 from rec. 4, enter 3 and press REW.



Example 2:
To go to rec. 6 from rec. 2, enter 4 and press FF.

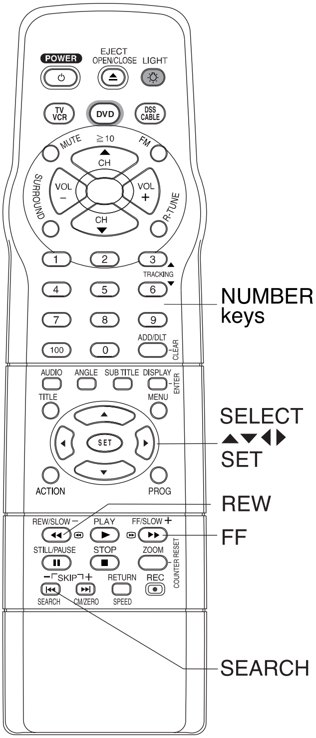


NOTE: ↓ indicates start points of each recording.

Notes

- Make each entry within 5 minutes, or the Index Search mode will be canceled.
- If Index Search is started very close to an index mark, that index mark may not be counted in the search.

*Important: If a remote control button does not work when pressed, press the TV/VCR button on the remote and try the button again.



Program End Search

Locates end point of recording for continuity.

1 **Press SEARCH** twice in Playback or Stop mode to display PROGRAM END SEARCH screen .

2

PROGRAM END SEARCH

SEARCH START:FF

EXIT : SEARCH

Press FF to start search.

To cancel, press PLAY or **STOP.**

Example of **Program End Search** operation.

Fig.1

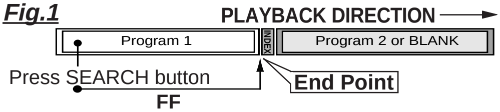


Fig.2

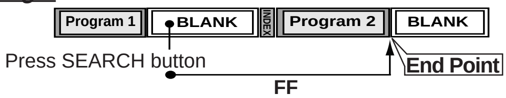
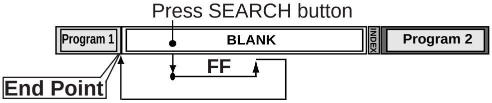
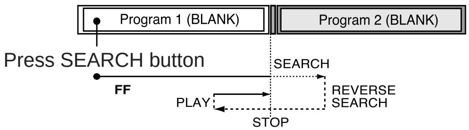


Fig.3 If search exceeds a few seconds in BLANK area.



Upon locating end point...
The unit searches slightly past end point, reverse searches, and plays the last few seconds of the program, then stops.

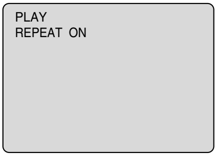


Note

- If Program End Search is started very close to an index mark, that mark may be skipped over.

Repeat Play

Set to see a recording over and over.





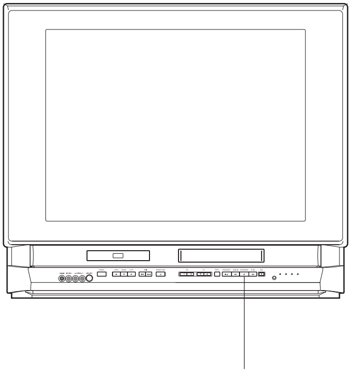
To turn “ON,”
press PLAY/REPEAT on the unit repeatedly in Play mode to select “REPEAT ON”.

To turn “OFF,”
repeat above to select “REPEAT OFF.”

- Playback repeats when tape end is reached or unrecorded portion over 30 seconds is detected.

Note

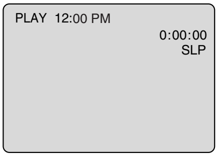
- For repeat play in DVD mode, see page 55.



Zero Search

To quickly return to a specific tape counter location.

1 **Press DISPLAY*** during playback to display the Counter.

2 

Press COUNTER RESET at the desired position to reset to “0:00:00.”

3 **Continue playback, rewind, or fast forward.**

4 **Press STOP.**

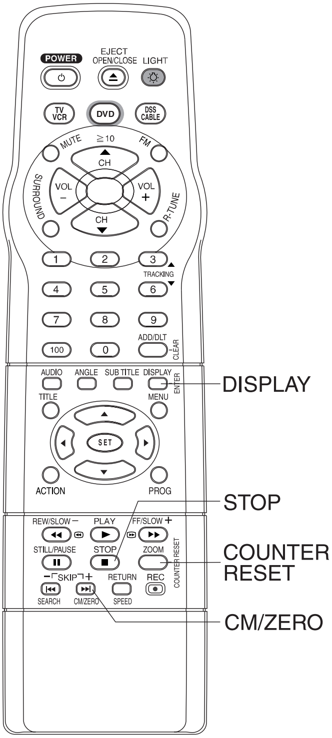
5 **Press CM/ZERO** in stop mode to start ZERO SEARCH.

- Unit goes into FF or REW mode and stops at the last point the Counter was set to 0:00:00.

*Important: If a remote control button does not work when pressed, press the TV/VCR button on the remote and try the button again.

Auto Operation Functions

- **Auto Shut Off**
  No broadcast signal in TV mode (Only when Weak Signal Display is set to **OFF**.), DVD stop, or blank tape is played for 5 minutes
  ➔ Power turns off
  - This feature is canceled if any button is pressed during above conditions.
- **Auto Playback**
  Insert a tape in Power off mode
  ➔ Power turns on
  - Playback begins if tape has no record tab.
- **Auto Rewind (except for Recording)**
  Tape reaches its end
  ➔ Rewind, ➔ Stop
- **Playback Auto Eject (Repeat Play is "OFF")**
  Tape with no record tab reaches its end
  ➔ Rewind, ➔ Stop, ➔ Eject

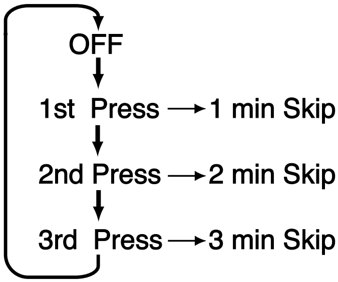


Commercial Skip

By pressing the CM/ZERO button in Playback mode you can skip over 1 to 3 minutes of recorded tape in just a few seconds.

Press CM/ZERO repeatedly to select skip time in Playback mode.

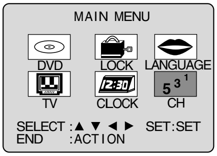
- No indication appears.



Channel Caption

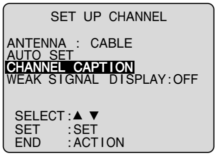
1 **Press ACTION*** to display MAIN MENU.

2



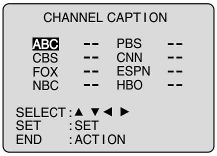
1) **Press ▲▼◀ ▶** to select "CH."
2) **Press SET** to display SET UP CHANNEL screen.

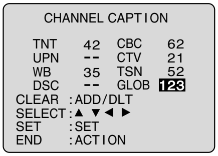
3



1) **Press ▲▼** to select CHANNEL CAPTION.
2) **Press SET** to display screen.

4





1) **Press ▲▼** to select a station.
2) **Press SET** (or ▶) to move cursor to the right.
3) **Press ▲▼** to select channel number.
4) **Press SET** (or ◀ ▶) to set preset captions.

• Repeat step **4** until the Caption List is complete.

To Make Corrections

Press ▲▼, then **SET** (or ▶) to select channel number
Press ▲▼ to change, or **ADD/DLT** to delete.

5 **Press ACTION** three times to end setup.

Channel Caption is ...

Station names, e.g. ABC, CNN, etc. are set so they will appear when a channel is selected. Choose 24 preset names.

Ready Checklist

☐ You need a list of stations and the channel numbers you receive them on.

*Important: If a remote control button does not work when pressed, press the TV/VCR button on the remote and try the button again.

Ready Checklist

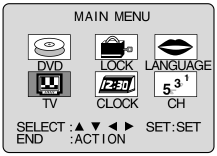
☐ It is necessary to enter TV mode by pressing TV/VCR before selecting “CH” on the MAIN MENU.

Remote Warning Feature

When Universal Remote Control (page 32) is used, and this feature is set to “ON,” a warning appears whenever an invalid key is pressed in DSS or Cable mode.

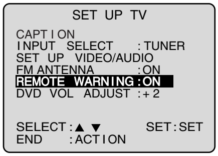
1 **Press ACTION** to display MAIN MENU.

2



1) **Press ▲▼◄ ►** to select “TV.”
2) **Press SET** to display SET UP TV screen.

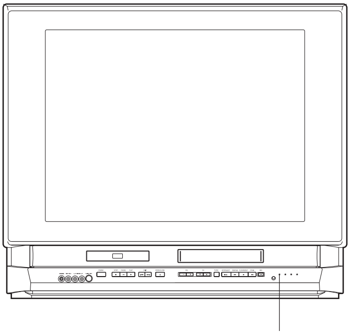
3



1) **Press ▲▼** to select REMOTE WARNING.
2) **Press SET** to set “ON” or “OFF.”

- “REMOTE WARNING : OFF”
  ➔ Remote warning will not appear even if invalid key is pressed.

4 **Press ACTION** twice to return to normal screen.



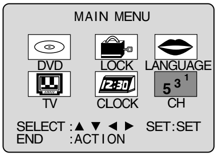
REC

Weak Signal Display Feature

When “ON” is selected, the picture is displayed even when a broadcast signal is weak or non-existent.

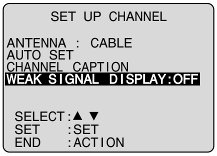
1 **Press ACTION** to display MAIN MENU.

2



1) **Press ▲▼◄ ►** to select “CH.”
2) **Press SET** to display SET UP CHANNEL screen.

3



1) **Press ▲▼** to select WEAK SIGNAL DISPLAY.
2) **Press SET** to set “ON” or “OFF.”

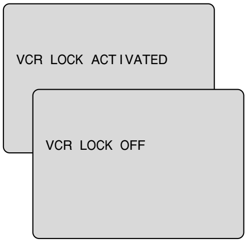
Notes

- “ON” = Picture is displayed regardless of signal condition, and may not always be clearly visible.
  “OFF”= Screen turns solid blue when signal is absent or weak.
- If unit is connected to equipment which has blue back feature, selecting “ON” will have no effect on the other equipment.

4 **Press ACTION** twice to return to the normal screen.

VCR Lock

All operations are prohibited except Timer recording and tape eject. Useful for families with small children.



In Stop mode, **hold down REC** on the unit without a cassette inserted for 7 seconds to turn “ON.” (Please ignore “NO CASSETTE” warning.)

Repeat above with or without cassette to turn “OFF.”

- VCR Lock is canceled automatically after about 24 hours if clock is set.
- “Auto Power On” is not prohibited when VCR Lock is activated.

V-Chip Control Feature

V-Chip Control Feature is...
This unit has a built-in V-Chip Control which allows you to block unwanted TV usage based on US MOVIES and US TV PROGRAMS Ratings.

Process of V-Chip Control Feature

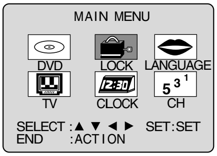
Enter Code ⇨ **Setup** ⇨ **Blocking**

Secret Code

A 4-digit code must be entered to view a blocked program or change rating settings.

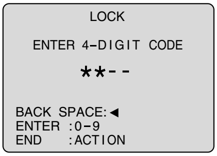
1 **Press ACTION*** to display MAIN MENU.

2



1) **Press ▲▼◄►** to select “LOCK.”
2) **Press SET** to display LOCK screen.

3

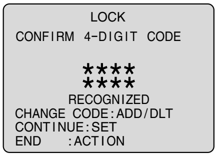


1) **Press number keys** to enter your secret code.
2) **Enter same code** again for confirmation.

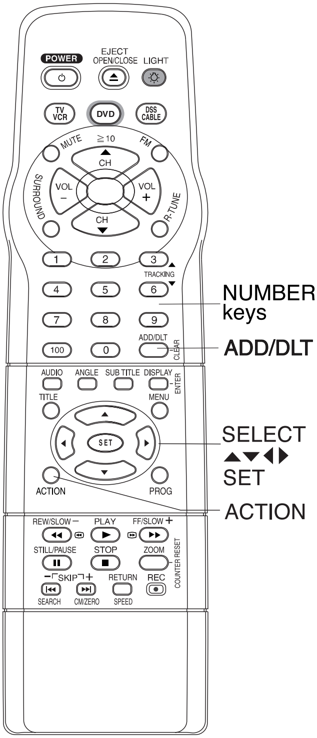
- Step 2) not necessary when changing rating or secret code.
- Take care that you are not observed entering the secret code.

To Make Corrections
Press ◄ repeatedly to move the cursor.
Press number keys to make the correction.

4



Press SET to display LOCK MENU (see pages 41, 42).
Or
Press ACTION twice to exit.



Changing your secret code
- You will need your current code.

Do steps **1** ~ **3**. In step **4**, **press ADD/DLT** to clear current code.
Repeat steps **3** and **4** to enter new code.

Notes
- Some rental movies do not include V-Chip data.
- DO NOT forget your secret code.
- Once ratings are set, restricted tapes or programs cannot be accessed unless the secret code is entered.

*Important: If a remote control button does not work when pressed, press the TV/VCR button on the remote and try the button again.

If LOCK menu is not displayed, do "Secret Code" steps on page 40.

Process of V-Chip Control Feature

Enter Code ⇨ **Setup** ⇨ Blocking

US MOVIES Ratings

1

```
LOCK
US MOVIES              :OFF
   CHANGE SETTINGS
US TV PROGRAMS         :OFF
   CHANGE SETTINGS
DVD LOCK               :OFF
   CHANGE SETTINGS
            NEXT PAGE
SELECT:▲ ▼          SET:SET
END    :ACTION
```

1) **Press ▲▼** to select US MOVIES.
2) **Press SET** to set "ON" or "OFF."

■ **"ON" ➔ V-Chip Control is activated.**
■ **"OFF" ➔ V-Chip Control is deactivated.**

Note
- "NEXT PAGE" displays CANADIAN V-Chip setting menu. Not necessary except when viewing Canadian tapes or broadcasts.

2

```
LOCK
US MOVIES              :OFF
   CHANGE SETTINGS
US TV PROGRAMS         :OFF
   CHANGE SETTINGS
DVD LOCK               :OFF
   CHANGE SETTINGS
            NEXT PAGE
SELECT:▲ ▼          SET:SET
END    :ACTION
```

1) **Press ▲▼** to select CHANGE SETTINGS.
2) **Press SET** to display screen.

3

```
VIEW NR PROGRAMS? : YES
     G          UNLOCKED
     PG
     PG-13
     R
     NC-17
     X
CONTAINS NO RATING
SELECT:▲ ▼         SET:SET
END    :ACTION
```

1) **Press ▲▼** to select VIEW NR PROGRAMS?.
2) **Press SET** to set "YES" or "NO."

NR (Not Rated) PROGRAMS
Some movies, such as old movies or foreign movies usually have no ratings.

4

```
VIEW NR PROGRAMS? : YES
     G          UNLOCKED
     PG
     PG-13
     R
     NC-17
     X
GENERAL AUDIENCE
SELECT:▲ ▼         SET:SET
END    :ACTION
```

1) **Press ▲▼** to select and **SET** to set ratings to be blocked. (See ratings chart on this page.)

5 **Press ACTION** to redisplay LOCK menu and continue with US TV PROGRAMS Ratings Setup (next page).
Or, **press ACTION** three times to exit.

US MOVIES RATINGS	
G	**GENERAL AUDIENCE:** All ages admitted.
PG	**PARENTAL GUIDANCE:** Some material may not be suitable for children.
PG-13	**PARENTS CAUTIONED:** Some material may be inappropriate for children under 13.
R	**RESTRICTED:** Children under 17 must be accompanied by a parent or adult.
NC-17	**OVER AGE 17 ONLY:** No one 17 and under admitted.
X	**ADULTS ONLY:**

V-Chip Control Feature (continued)

If LOCK menu is not displayed, do "Secret Code" steps on page 40.

Process of V-Chip Control Feature

Enter Code ⇨ **Setup** ⇨ Blocking

US TV PROGRAMS Ratings

1

```
            LOCK
US MOVIES               :OFF
    CHANGE SETTINGS
US TV PROGRAMS          :OFF
    CHANGE SETTINGS
DVD LOCK                :OFF
    CHANGE SETTINGS
                 NEXT PAGE
SELECT:▲ ▼         SET:SET
END    :ACTION
```

1) **Press ▲▼*** to select US TV PROGRAMS.
2) **Press SET** to set "ON" or "OFF."

- **"ON" ➔ V-Chip Control is activated.**
- **"OFF" ➔ V-Chip Control is deactivated.**

Note

- "NEXT PAGE" displays CANADIAN V-Chip setting menu. Not necessary except when viewing Canadian tapes or broadcasts.

2

```
            LOCK
US MOVIES               :OFF
    CHANGE SETTINGS
US TV PROGRAMS          :OFF
    CHANGE SETTINGS
DVD LOCK                :OFF
    CHANGE SETTINGS
                 NEXT PAGE
SELECT:▲ ▼         SET:SET
END    :ACTION
```

1) **Press ▲▼** to select CHANGE SETTINGS.
2) **Press SET** to display screen.

3

```
VIEW NR PROGRAMS? : YES
  TV-Y          UNLOCKED
  TV-Y7      FV

  TV-G
  TV-PG      V  S  L  D
  TV-14      V  S  L  D
  TV-MA      V  S  L
 CONTAINS NO RATING
 SELECT:▲ ▼◀ ▶   SET:SET
 END    :ACTION
```

1) **Press ▲▼** to select VIEW NR PROGRAMS?.
2) **Press SET** to set "YES" or "NO."

NR (Not Rated) PROGRAMS
Some TV shows, such as news, sports, weather, bulletins, emergency information usually have no ratings.

4

```
VIEW NR PROGRAMS? : YES
  TV-Y          UNLOCKED
  TV-Y7      FV

  TV-G
  TV-PG      V  S  L  D
  TV-14      V  S  L  D
  TV-MA      V  S  L
 FOR ALL CHILDREN
 SELECT:▲ ▼◀ ▶    SET:SET
 END    :ACTION
```

1) **Press ▲▼** to select and **SET** to set ratings to be blocked. (See ratings charts on this page.)

- Ratings highlighted in Green will be blocked. Ratings in white letters will not be blocked.

Note

You may select from standard TV ratings (chart 1), or customize to a specific content rating (chart 2).

5 **Press ACTION** four times to exit this mode.

US TV PROGRAMS RATINGS: Chart 1

TV-Y	**FOR ALL CHILDREN:** Content specifically geared to young viewers ages 2-6.
TV-Y7	**FOR AGE 7 AND OLDER:** May contain mild physical or comedic violence which may frighten children under 7.
TV-G	**GENERAL AUDIENCE:** Contains little or no violence, strong language, or sexual dialogue or situations.
TV-PG	**PARENTAL GUIDANCE:** May contain infrequent coarse language, limited violence, some suggestive sexual dialogue and situations.
TV-14	**PARENTS CAUTIONED:** May contain sophisticated themes, sexual situations, strong language, and more intense violence.
TV-MA	**MATURE AUDIENCE:** May contain mature themes, profane language, graphic violence, and sexual situations.

US TV PROGRAMS RATINGS: Chart 2

FV	Fantasy Violence
V	Violence
S	Sexual Situations
L	Adult Language
D	Sexually Suggestive Dialogue

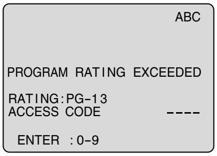
*Important: If a remote control button does not work when pressed, press the TV/VCR button on the remote and try the button again.

Blocking Message

Process of V-Chip Control Feature

Enter Code ⇨ Setup ⇨ Blocking

<When V-Chip Control is activated>

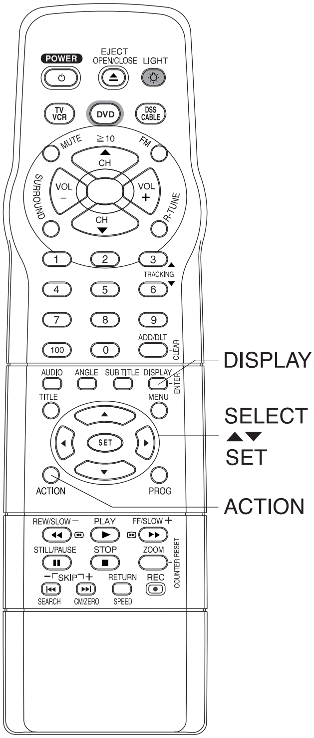


- If a program or movie exceeds the ratings you have set, a message will appear on a black background and sound is muted.

To View a Blocked Program / Movie

[Temporarily Deactivate V-Chip Control]
Enter your secret code (ACCESS CODE) in the Blocking Message screen.
- V-Chip Control is reactivated when power is turned off or power failure occurs.

[Deactivate V-Chip Control]
Enter your secret code (steps 1-4 page 40). Then, set US MOVIES and/or US TV PROGRAMS to “OFF” using ▲▼ and **SET**. (Ratings set on pages 41, 42 are retained and will be in effect when V-Chip Control is activated again.)



Audio Features

Audio Mode for Playback

Choose the type of sound track for playback.

1 See the “**Playback a Tape**” section on page 18 to playback the tape.

2



- This screen appears when you **press AUDIO** during playback.

Press AUDIO repeatedly (each press within 5 seconds) to select desired mode.

- Select “HIFI (L/R)”, “HIFI (L)” or “HIFI (R)” to listen to stereo recordings in stereo sound. Select “NORMAL” for monaural sound.

With the proper audio mode setting, your unit can:

- record and playback MTS stereo broadcast (main language) in stereo Hi-Fi. Stereo sound is recorded on the left and right audio tracks and on the video portion of a tape.
- record and playback a monaural broadcast (main language) or SAP (Secondary Audio Program, usually in a second language) on the Hi-Fi tracks for better quality monaural sound.
- playback non-Hi-Fi tapes in monaural.

Audio Mode for Recording

Choose audio mode to match recording type.

1 **Press AUDIO** repeatedly to select the audio mode according to the type of broadcast to be recorded.

- The Audio mode selected stays in effect until it is changed.

2 See the “**Record On a Tape**” section on page 18 to do a recording.

Notes

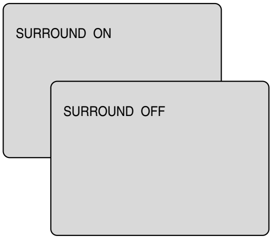
- Only tapes recorded in Hi-Fi stereo will playback with true stereo sound. Standard stereo tapes will playback with monaural sound.
- To listen to Hi-Fi stereo playback, the unit AUDIO (L/R) jacks must be connected to a stereo amp and speakers.
- There may be a difference in audio level between Hi-Fi and normal audio playback.

*Important: If a remote control button does not work when pressed, press the TV/VCR button on the remote and try the button again.

Surround Sound System

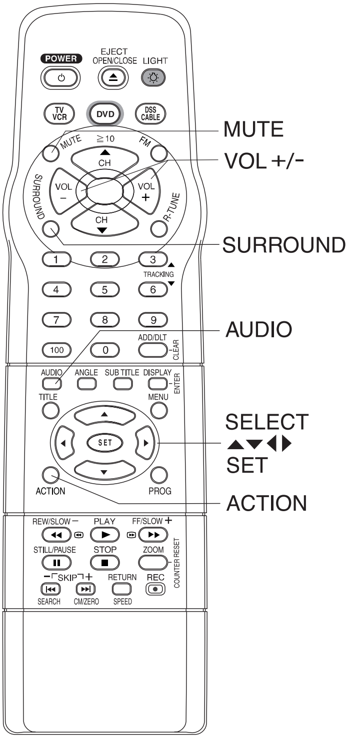
You can hear a deeper, 3-D sound effect using just the unit's two front speakers.

Set Surround sound.



Press SURROUND.
•"SURROUND ON" is displayed.

To Cancel, press SURROUND.



Notes

- Surround sound effect is not available for normal (mono) broadcasts.
- The surround effect (TV, VCR mode only) is not output to Audio Output L/R Connector.

Video / Audio Menu

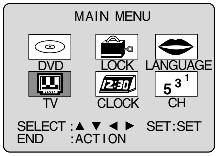
*Important: If a remote control button does not work when pressed, press the TV/VCR button on the remote and try the button again.

This feature allows easy setting of picture and sound suitable for each program source.

Video Menu

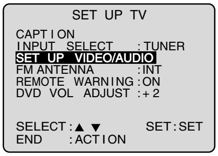
1 **Press ACTION*** to display MAIN MENU.

2



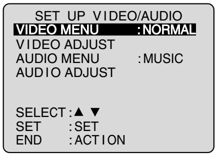
1) **Press ▲▼◀▶** to select "TV."
2) **Press SET** to display SET UP TV screen.

3



1) **Press ▲▼** to select "SET UP VIDEO/AUDIO."
2) **Press SET** to display.

4

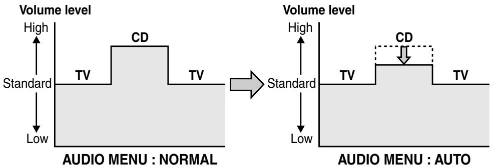


1) **Press ▲▼** to select "VIDEO MENU."
2) **Press SET** repeatedly to select desired mode. (See below.)

5 **Press ACTION** three times to end setup.

[Video Menu]

NORMAL
Factory setting.
MOVIE
Picture is adjusted for a Movie-like feel.
NIGHT
Color and picture intensity are adjusted to be easier on the eyes for night viewing.

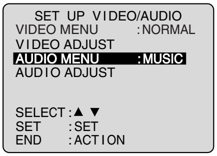


<Audio AGC Example>

Audio Menu

a **Do steps 1 - 3 left.**

b

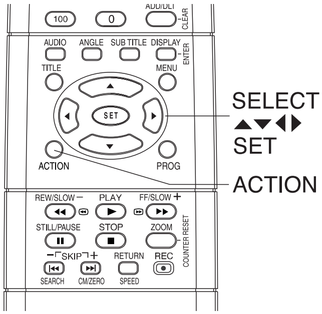


1) **Press ▲▼** to select "AUDIO MENU."
2) **Press SET** to select desired mode. (See below.)

c **Press ACTION** three times to end setup.

[Audio Menu]

NORMAL
Factory setting
AUTO
[Audio AGC (Auto Gain Control)**]**
The sound level is automatically adjusted to suit the program source (see below left).
MOVIE
Sound suited to movies.
MUSIC
Sound suited to music.
SPEECH
Sound suited to dialog.



Notes

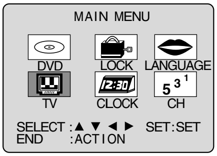
- The effects of this feature on the signal is not output to the Audio/Video Output Connector.
- When AUDIO MENU mode is "AUTO," the AUDIO ADJUST setting will be "STANDARD."
- AUDIO MENU settings remain in memory.
- VIDEO MENU settings do not remain in memory.

Video / Audio Adjustment

Video Adjustment

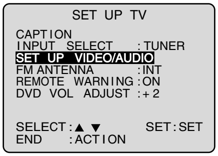
1 **Press ACTION** to display MAIN MENU.

2



1) **Press ▲▼◀ ▶** to select "TV."
2) **Press SET** to display SET UP TV screen.

3



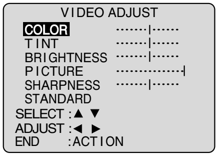
1) **Press ▲▼** to select "SET UP VIDEO/AUDIO."
2) **Press SET** to display.

4



1) **Press ▲▼** to select "VIDEO ADJUST."
2) **Press SET** to display.

5



1) **Press ▲▼** to select an item. (See below.)
2) **Press ◀ ▶** to adjust.

To Reset VIDEO Controls.
Press ▲▼ and **SET** to select and set "STANDARD." All controls return to their factory settings.

6 **Press ACTION** four times to end setup.

[VIDEO Adjustment]

COLOR Control
Adjust color intensity.

TINT Control
Adjust for natural flesh tones.

BRIGHTNESS Control
Adjust picture brightness.

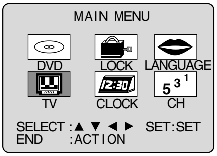
PICTURE Control
Adjust picture intensity by adjusting both contrast and color level in the proper balance.

SHARPNESS Control
Adjust picture sharpness.

Audio Adjustment

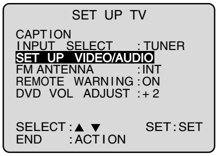
a **Press ACTION** to display MAIN MENU.

b



1) **Press ▲▼◀ ▶** to select "TV."
2) **Press SET** to display SET UP TV screen.

c



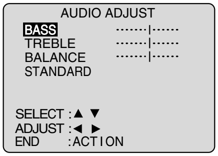
1) **Press ▲▼** to select "SET UP VIDEO/AUDIO."
2) **Press SET** to display.

d



1) **Press ▲▼** to select "AUDIO ADJUST."
2) **Press SET** to display.

e



1) **Press ▲▼** to select an item. (See below.)
2) **Press ◀ ▶** to adjust.

To Reset AUDIO Controls.
Press ▲▼ and **SET** to select and set "STANDARD." All controls return to their factory settings.

f **Press ACTION** four times to end setup.

[AUDIO Adjustment]

BASS Control
To adjust the intensity of low frequency sound.

TREBLE Control
To adjust the intensity of high frequency sound.

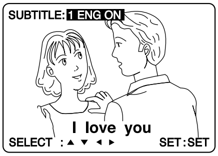
BALANCE Control
To adjust the (L/R) unit speaker output level.

- The levels set here do not affect other audio equipment when connected to the Audio Output L/R Connector.

Subtitle Language (DVD only)

You can select a different subtitle language (if offered) than the one set at the Settings for DVD Operation. (See page 57.)

1



Press SUB TITLE* in Play mode to display the subtitle selection on-screen.
- Display disappears after 5 seconds.
- When no subtitles are offered, "-" will be displayed instead of the language number.

2



Number of subtitle language being played back.

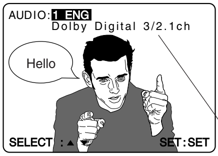
1) **Press ▲▼** to select desired language.
2) **Press ►** (or ◄) to set.
3) **Press ▲** (or ▼) to select "ON" or "OFF."

Notes
- When closed captioning is used along with subtitles, they may overlap. If so, turn one function off. (See pages 24 and 25.)
- If after several presses of the button the language does not change, language selection is not offered on the disc.
- Subtitles may not change to the selected language immediately.
- When power is turned on again or disc is removed, subtitles revert to initial setting language. If the initial language is not recorded on the disc, the disc's priority language will appear.

Audio Soundtrack Language (DVD only)

You can change the audio soundtrack language, selected at the Settings for DVD Operation, to a different language if available. (See page 57.)
(This operation works only with discs on which multiple audio soundtrack languages are recorded.)

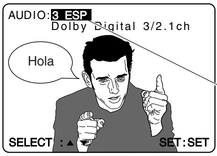
a



Press AUDIO in Play mode to display the audio selection on-screen.
- Display disappears after 5 seconds.

Audio attribute 1 type, sampling frequency, bit No. of the disc.

b



1) **Press ▲▼** to select desired language.

Number of the audio soundtrack language being played back.

Ready Checklist

☐ Please read "Basic DVD Operation" on page 20.

[Subtitle language (No.)] [Audio sound track language (No.)]

ENG	English
FRA	French
DEU	German
ITA	Italian
ESP	Spanish
NLD	Dutch
SVE	Swedish
NOR	Norwegian
DAN	Danish
POR	Portuguese
RUS	Russian
JPN	Japanese
CHI	Chinese
KOR	Korean
MAL	Malay
VIE	Vietnamese
THA	Thai
	Other

- Change the No. by **pressing ▲▼**, and **press SET**.

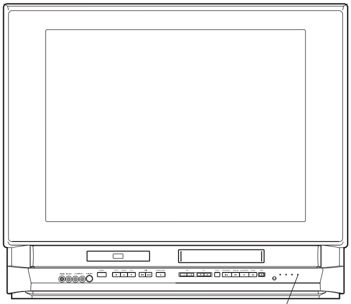
[Audio attribute 1 type, sampling frequency, bit No. of the disc (see page 58)]

LPCM	96KHz or 48KHz	16bit / 20bit / 24bit	Linear PCM disc
Dolby Digital	1ch - 5.1ch		Dolby Digital disc
DTS	1ch - 5.1ch		DTS disc

Notes
- If, after several presses of the button the language does not change, language selection is not offered on the disc.
- When power is turned on again or disc is removed, language reverts to initial setting. If this language is not recorded on the disc, the language recorded will be heard.

*Important: If a remote control button does not work when pressed, press the DVD button on the remote and try the button again.

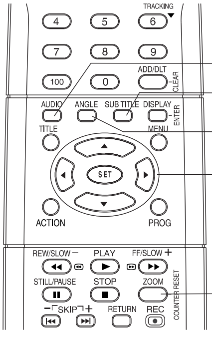
When ⃠ appears on the screen while a button is being operated, it means that the corresponding operation is prohibited by the unit or the disc.



ANGLE Indicator

Notes

- ANGLE Indicator lights up on the unit when a scene recorded at different angles is detected.
- The angle number can be set beforehand so that the angle is switched whenever ANGLE Indicator lights up.



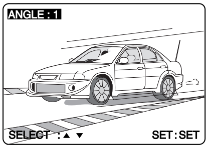
Notes

- Closed captioning will not be displayed while Picture Zoom is used. To see subtitles, set the subtitle feature to ON (see page 48).
- The subtitle cannot be enlarged nor can it's position be changed.
- The picture zoom feature does not work with a Video CD.
- During picture zoom, "ZOOM1" or "ZOOM2" is displayed on-screen.
- Zooming, on some discs, may result in poor picture quality, or not operate.

Multiple Angle Viewing (DVD only)

DVDs may contain scenes shot from multiple camera angles allowing the same scene to be viewed at different angles. You can view these angles, if available, using the ANGLE button.

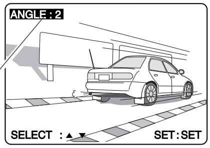
1



Press ANGLE in Play mode to display the angle selection on-screen.

- Display disappears after 5 seconds.

2



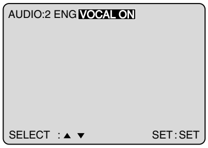
Press ▲▼ to select the desired angle.

Number of angle being played back.

Vocal selection for Karaoke discs (DVD/Video CD)

a **Press AUDIO** in Play mode to display the audio screen.

b



1) Press ▲▼ (or ◀ ▶) to select as shown below.
2) Press ▶ (or ◀) to set. (DVD only)

- DVD Karaoke (1 vocal) VOCAL ON ↔ VOCAL OFF
- DVD Karaoke (2 vocals) VOCAL V1 + V2 → VOCAL V1 → VOCAL V2 → VOCAL OFF
- Video CD LR → L → R

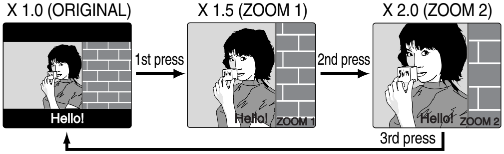
Picture Zoom (DVD only)

You can enlarge specific portions of a picture and select the zoom ratio using the ZOOM button on the remote during DVD playback.

Set Zoom size.

Press ZOOM repeatedly to change display as follows.

- You can enlarge the center portion of the image to one of 2 magnifications.



Use the ▲, ▼, ◀ and ▶ buttons to move the position up, down, left and right.

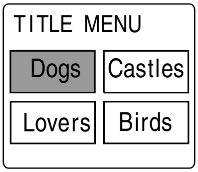
Advanced Operation

Disc Operation (continued)

Title menu (DVD only)

Some DVDs have more than one title, e.g. movies. If the disc offers a title menu, you can select the desired title number. (Operation may vary according to the disc.)

1

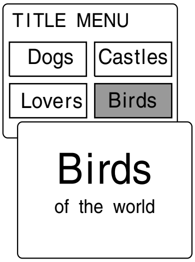


<Example>

Press TITLE* in Play mode to display title screen.

- **Pressing TITLE** again resumes play from the scene when TITLE was first pressed.

2



<Example>

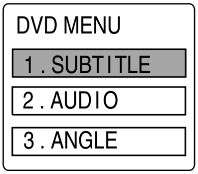
1) **Press ▲▼◀▶** or **number Key(s)** to select a title.
2) **Press SET** or **PLAY** to start play.

- Step 2) not necessary when using number key(s).

DVD menu (DVD only)

DVDs may offer a special menu. This menu may include guides to unique contents, audio/subtitle languages, etc. Although contents and operation may vary, the following steps show basic steps for using the menu.

a

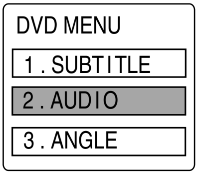


<Example>

Press MENU in Play mode to display DVD menu.

- **Pressing MENU** again resumes play from the scene when MENU was first pressed.

b



<Example>

1) **Press ▲▼◀▶** or **number key(s)** to select an item.
2) **Press SET** or **PLAY** to access.

- Step 2) not necessary when using number key(s).

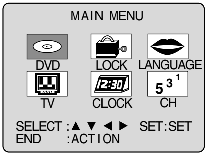
Repeat step "b" if more than one menu.

Program Play (Video CD/CD)

You can program specific tracks and order of play.

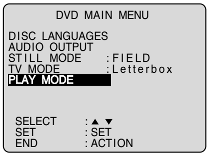
1 **Press ACTION** in Stop mode to display MAIN MENU.

2



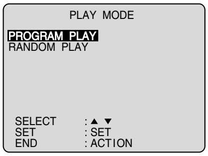
1) **Press ▲▼◀▶** to select "DVD."
2) **Press SET** to display screen.

3



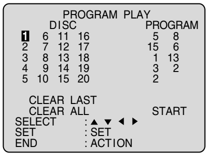
1) **Press ▲▼** to select "PLAY MODE."
2) **Press SET** to display screen.

4



1) **Press ▲▼** to select "PROGRAM PLAY."
2) **Press SET** to display screen.

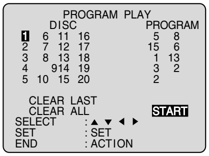
5



1) **Press ▲▼◀▶** to select a track number. (Track numbers on disc are displayed.)
2) **Press SET** to set.

- Repeat step 5 to select another track.
- The selected track is added on the right side.

6



1) **Press ▲▼◀▶** to select "START."
2) **Press SET** to start play of programs in the sequence selected.

- To cancel, **press STOP** during play, then **press CLEAR**.

Notes

- Up to 15 tracks can be programmed.
- "◀ " or " ▶" (depending on disc) indicates additional PROGRAM PLAY screen. **Press ▲▼◀▶** for next or previous screen.
- **To clear the last program one by one, Press ▲▼◀▶** to move to "CLEAR LAST" and **press SET**. (**Pressing CLEAR** also clears last program.)
- **To clear all programs, Press ▲▼◀▶** to move to "CLEAR ALL" and **press SET**. (Programs are also cleared when the power is turned off or the disc is removed.)

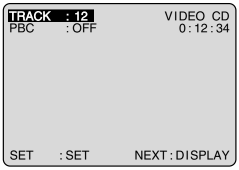
*Important: If a remote control button does not work when pressed, press the TV/VCR, DVD button on the remote and try the button again.

Program Repeat Play (Video CD/CD)

a **Do steps 1 through 6 on previous page.**

b **Press DISPLAY** to display Disc Information screen.

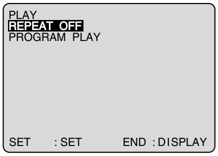
(Disc Information Screen)



c **Press DISPLAY** again to display Unit Information screen.

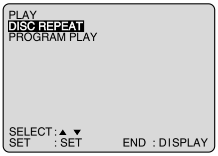
d **Press SET** to enter Select mode. ("REPEAT OFF" will flash.)

(Unit Information Screen)



e **Press ▲▼** to select "DISC REPEAT."

(Unit Information Screen)



f **Press SET** to set mode. ("DISC REPEAT" stops flashing.)
To cancel, select "REPEAT OFF" in step **e**, then **press SET**.

Ready Checklist

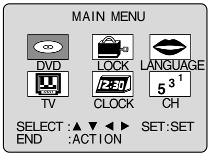
- ☐ Unit is in TV-VCR mode, press TV/VCR.
- ☐ Video CD or CD is inserted.

Random Play (Video CD/CD)

Tracks are played in a random order.

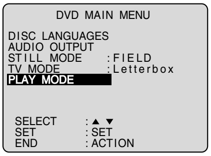
1 **Press ACTION** in Stop mode to display MAIN MENU.

2



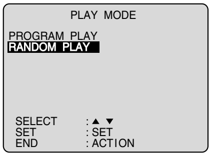
1) **Press ▲▼◀▶** to select "DVD."
2) **Press SET** to display screen.

3



1) **Press ▲▼** to select "PLAY MODE."
2) **Press SET** to display screen.

4



1) **Press ▲▼** to select "RANDOM PLAY."
2) **Press SET** to begin random play.

- To cancel, **press STOP** during play, then **press CLEAR**.

MP3 Playback Operation

***Important:** If a remote control button does not work when pressed, press the DVD button on the remote and try the button again.

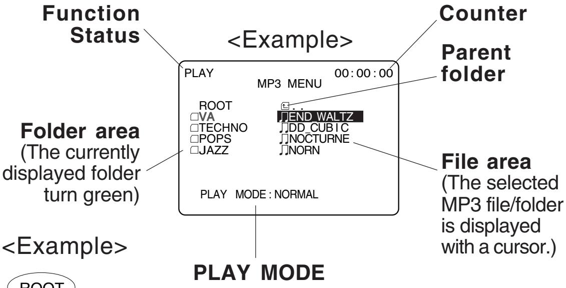
MP3 Playback

You can use this unit to play MP3 format audio recorded for personal use with a computer etc. onto a CD-R or CD-RW. Play may not be possible in some cases due to the condition of the recording.

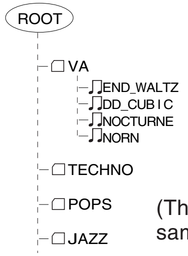
1 **Press POWER** on the remote or DECK.

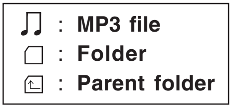
2 **Press OPEN/CLOSE,** and then place a MP3 disc into the disc tray.
Press OPEN/CLOSE to close.

3 Display MP3 MENU and start playing automatically. (The MP3 CD layer is displayed.)



<Example>





(The disc layer composition of the sample OSD above is displayed.)

Forward/Reverse Search
Press FF/SLOW+ or **RR/SLOW-** during play.
Press PLAY to release.
- Search speed, slow at first, increases with each additional press of the button up to 4 levels.

Forward/Reverse Track Skip
Press SKIP ▶▶I or **I◀◀ SKIP** during play.
Each press skips a track.
- If pressed within first 3 seconds of playback, skips to the previous track. If over 3 seconds, returns to first of that track. (**I◀◀ SKIP** only.)
- Only the **SKIP ▶▶I** or **I◀◀ SKIP** button can be used for track skip selection during playback.
Place unit into Stop mode before performing folder/ file selection (see above right).

4 **Press STOP** to stop playing.

5 **Press OPEN/CLOSE** to eject the disc.
The MP3 MENU is closed automatically.

MP3 playback (During STOP mode)
1) **Press ▲▼** to select an MP3 file (♫).
2) **Press SET** or **PLAY** to start playback.

Select folder (During STOP mode)
1) **Press ▲▼** to select a folder (▢).
2) **Press SET** displays files/folders contained in the folder.

Select parent folder (During STOP mode)
1) **Press ▲▼** to select a folder (⮤).
2) **Press SET** changes to the previous layer display.

Note
- Folder area operation cannot be done. Only file area operation is possible.

Select PLAY MODE (During STOP mode)
1) **Press ◀ ▶** moves the cursor to PLAY MODE.
2) **Press ▲▼** to select the desired PLAY MODE (see below).

[PLAY MODE]

NORMAL:
All MP3 files are selected and played back one time only.

SINGLE REPEAT:
The selected MP3 file is played back repeatedly.

FOLDER REPEAT:
The MP3 files contained in the selected folder are played back repeatedly.
However, folders below the selected folder are not played back.

DISC REPEAT:
All MP3 files are played back repeatedly.

DVD Operation using On-Screen Displays

When DISPLAY is pressed, On-Screen Displays show disc information (title/chapter/track number, elapsed playing time) and unit information (repeat play, Play mode).

Ready Checklist

☐ Unit is in DVD mode, press DVD.

1 **Press DISPLAY** in Play or Stop mode to display "On-Screen Display."

- Each **press** of **DISPLAY** changes the on-screen display as follows. (Please refer to page 54 or 55.)

→ Selected disc information
↓
Selected unit information
↓
Normal Screen

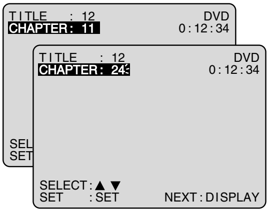
Note

DISPLAY button does not function while DVD TITLE MENU is displayed.

2 1) **Press ▲▼** (or ◀▶) to select an item.
2) **Press SET** to set.

3 1) **Press ▲▼** to select the setting.
2) **Press SET** to set.

<Example of DVD>

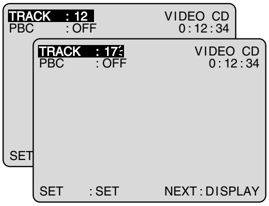


- For some functions the setting will be registered immediately without **pressing SET**.
- When numbers are displayed (e.g. title number), the number keys are also available.

To make corrections, press ▲▼ and **SET** repeatedly to move to error, then correct.

- **Pressing ▶** is effective for elapsing time instead of the above buttons. **Press ◀** repeatedly to delete the error, then correct.

<Example of Video CD>



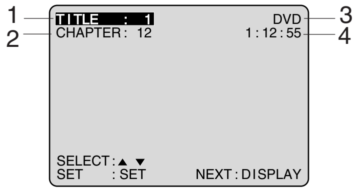
To return to the normal screen, press CLEAR or **DISPLAY** repeatedly.

Notes

- When **DISPLAY** is pressed during playback of a Video CD with Playback control, the **number keys** are not available on the displayed screen. In this case, **press DISPLAY** again to remove the displayed screen.
- When ⃠ appears on the screen while a button is being operated, it means that the corresponding operation is prohibited by the unit or the disc.

Detailed Descriptions of Each On-Screen Display

Disc information screen (for DVD)



1. TITLE No.

- Change the No. by **pressing ▲▼*** or the **number keys**, and **press SET**.

2. Chapter No.

- Change the No. by **pressing ▲▼** or the **number keys**, and **press SET**.

3. Disc currently being played

4. Elapsed playing time

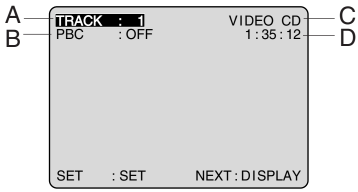
The screen may be changed by selecting the elapsed time.

- Change the elapsed time by **pressing number keys**, and **press SET**.

(e.g.) 01 : 23 : 45 0 ➔ 1 ➔ 2 ➔ 3 ➔ 4 ➔ 5

- This function does not work with some discs.

Disc information screen (for Video CD/ CD)



A. Track No.

- Change the No. by **pressing ▲▼** or the **number keys**, and **press SET**.

B. Playback control ON/OFF

[Video CD with playback control only]

ON	Video CD menu play is displayed.
OFF	Video CD menu play is cleared.

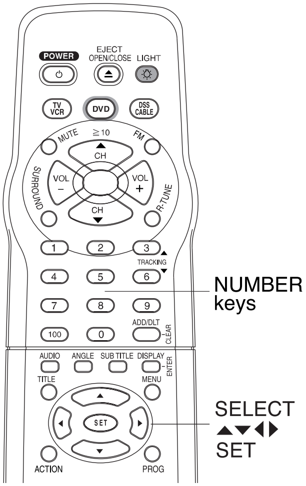
C. Disc currently being played

Video CD	CD

D. Elapsed playing time

Notes

- Track No. and elapsed playing time are not displayed during play started from menu of Video CDs with playback control.
- When ⃠ appears on the screen while a button is being operated, it means that the corresponding operation is prohibited by the unit or the disc.



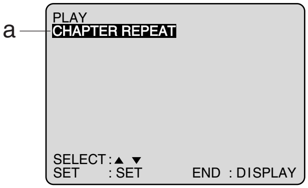
Detailed Descriptions of Each On-Screen Display

Unit information screen

- Change the desired mode during play by **pressing ▲▼**, and **press SET**.

a. Repeat Play

DVD	CHAPTER REPEAT	TITLE REPEAT	REPEAT OFF
Video CD/CD	TRACK REPEAT	DISC REPEAT	REPEAT OFF



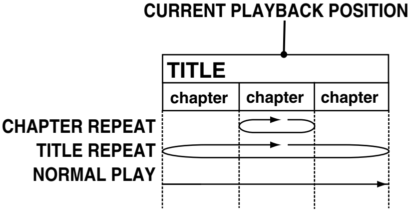
b. Play mode [Video CD/ CD only] (See page 53 or 54.)

PROGRAM PLAY	program play
RANDOM PLAY	random play
-	normal play

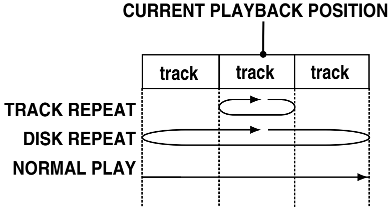


For your reference

• CHAPTER/TITLE REPEAT PLAY (DVD)



• TRACK/DISC REPEAT PLAY (Video CD/CD)



Note

- For repeat play in VCR mode, see page 36.

DVD Lock Feature

*Important: If a remote control button does not work when pressed, press the TV/VCR, DVD button on the remote and try the button again.

You can prevent playback of DVDs in a specific rating level which may be unsuitable for children.

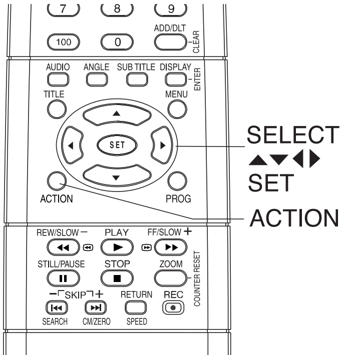
- Some DVDs are encoded with a rating level. If the disc rating is higher (stricter) than the one you preset, playback will be prohibited.

Caution

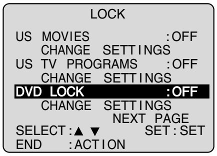
Discs not encoded with rating level will play even if the jacket states it is for mature audiences. For these discs, the DVD Lock Ratings will not work.

DVD Lock Ratings (DVD only)

Perform DVD Lock setting in TV mode.
Enter your secret code to display LOCK menu.
(Do “Secret Code” steps on page 40.)



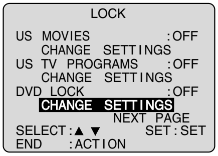
1



1) **Press ▲▼*** to select “DVD LOCK.”
2) **Press SET** to set “ON” or “OFF.”

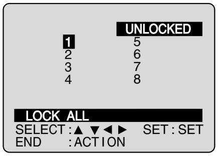
■ **“ON” → DVD Lock is activated.**
■ **“OFF” → DVD Lock is deactivated.**

2



1) **Press ▲▼** to select “CHANGE SETTINGS.”
2) **Press SET** to display screen.

3



1) **Press ▲▼◀ ▶** to select rating level.
2) **Press SET** to select “LOCKED” or “UNLOCKED.”

LEVEL 1 : LOCK ALL:
Playback of all DVDs, CDs and Video CDs is prohibited. (Use to prohibit play of mature theme DVDs not encoded with rating level.)

LEVEL 2 : DVDs expressly for children can be played back.

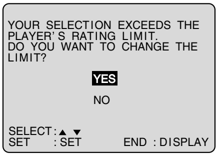
LEVEL 3 to 7 :
DVDs for general audiences/children can be played back. (DVDs with mature content are prohibited.)

LEVEL 8 : NO LIMIT: (Factory preset)
All DVDs can be played back.

- Ratings which are highlighted in Green will be blocked; those not highlighted (white letters) will not be blocked.

4 **Press ACTION** three times to end setup.

<When DVD Lock is activated>



After DVD Lock is set and a blocked DVD is played, this message will appear. The message may differ depending on the disc.

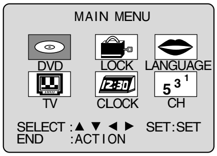
To continue viewing a blocked program for now,
Press ▲▼ to select “YES” and **SET**. Then, enter your 4-digit secret code. When “NO” is selected, blocked programs cannot be viewed.

To change DVD LOCK settings
After entering your secret code in step 3 on page 40,select “OFF” to deactivate DVD Lock or change the rating level.

Settings for DVD Operation

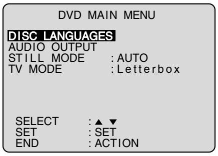
1 **Press ACTION** in Stop mode to display MAIN MENU.

2



1) **Press ▲▼◀▶** to select “DVD.”
2) **Press SET** to display screen.

3



1) **Press ▲▼** to select an item.
2) **Press SET** to set.

DISC LANGUAGES (See below.)
Any languages offered on the disc can be set. If a language not offered is set, the original disc language will be selected.

AUDIO OUTPUT (See page 58.)
You can set the audio output that comes from the digital audio output terminal.

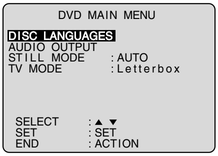
STILL MODE (See page 59.)
To select “FIELD” or “FRAME” to prevent jitter or to make small text or fine patterns clearly visible in a still picture. When “AUTO” is set “FIELD” or “FRAME” is selected automatically.

TV MODE (See page 59.)
To select whether the video material for a wide-screen will be played back in Pan & Scan style or in Letterbox style.

DISC LANGUAGES (DVD only)

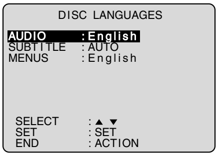
To select and set the language of the audio soundtrack, subtitles, or title/DVD menus for all discs to be played.

4



1) **Press ▲▼** to select “DISC LANGUAGES.”
2) **Press SET** to display screen.

5



1) **Press ▲▼** to select an item.
2) **Press SET** repeatedly for desired language. (Please refer right.)

6 **Press ACTION** to redisplay DVD menu and go to step 3 to setup another item. Or, **press ACTION** three times to exit.

Once initial settings are done, they remain in memory (even after power off) until changed. This means the unit will always operate under the same conditions (especially DVDs) each time.

Ready Checklist

☐ Unit is in TV-VCR mode, press TV/VCR.

“AUDIO” selections

To select the audio soundtrack language. (factory preset: English)
English/Spanish/French
Original: Original disc language
OTHER ✱✱✱✱: Other language selection*1

“SUBTITLE” selections

To select the subtitle language. (Factory preset: AUTO)
AUTO: Same language selected for “AUDIO”
- If language set for “AUDIO” is used in playback, subtitles will not appear.
- If another language is used during playback, the subtitles will appear in the language selected at “AUDIO” setup.

English/Spanish/French
OTHER ✱✱✱✱: Other language selection*1

“MENUS” selections

(factory preset: English)
To select the language used in title menus or DVD menus.
English/Spanish/French
OTHER ✱✱✱✱: Other language selection*1

To enter OTHER ✱✱✱✱ code number, Press number keys (Please refer to language codes on page 63).
To make corrections, **press ◀** repeatedly to delete language code number, and correct.

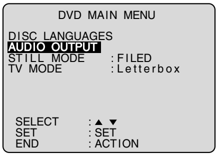
*1 If the selected language is not offered, the original disc language is selected.

AUDIO OUTPUT

Select the digital output to be output from the optical digital audio output connector of the unit.

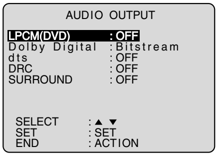
1 **Do steps 1 and 2 on page 57.**

2



1) **Press ▲▼*** to select "AUDIO OUTPUT."
2) **Press SET** to display screen.

3



1) **Press ▲▼** to select an item.
2) **Press SET** repeatedly for output. (See below.)

"LPCM (DVD)" selections

OFF: Linear PCM of less than 48 kHz/16 bit is output. When playing DVDs recorded in linear PCM of over 48 kHz/20 bit or 96 kHz, no digital audio is output. (Factory preset)

PCM: When playing DVDs recorded in linear PCM of 48 kHz/20 bit/24 bit or 96 kHz, digital audio converted to 48 kHz/16 bit is output. (Digital output of PCM audio is restricted to 48 kHz/16 bit or below for copyright protection.)

"Dolby Digital" selections

Bitstream: Dolby Digital bitstream (1ch-5.1ch) is output. (Factory preset)

OFF: No output.

"dts" selections

Bitstream: dts bitstream is output. (Factory preset)

OFF: No output.

"DRC (Dynamic Range Compression)" selections

OFF: Normal audio range is selected. (Factory preset)

ON: For dynamic sound even at low volume, this is useful for late-night listening. [Dolby Digital DVDs only].

"SURROUND" selections

Surround Sound creates the effect of sound coming from non-existent rear speakers even when only connected to a 2-channel stereo system.

OFF: No Surround Sound effect. (Factory preset)

ON: Surround Sound effect.

4 **Press ACTION** to redisplay DVD menu and go to step 2 to setup another item. Or, **press ACTION** three times to exit.

Type of amplifier to be connected	Recommended setting		
	LPCM (DVD)	Dolby Digital	dts
No amplifier is connected	OFF	OFF	OFF
AV amplifier (with digital audio input connector) without Dolby Digital/dts decoder	PCM*1	OFF*2	OFF*2
AV amplifier including Dolby Digital decoder	PCM*1	Bitstream	OFF
AV amplifier including Dolby Digital/dts decoder	PCM*1	Bitstream	Bitstream*3

- Make settings according to amplifier connected to optical audio output as shown in above table.
- When a dts decoder is not connected, to enjoy dts DVD, please select audio output other than dts at the dts DVD menu screen. Otherwise, there will be no sound from the unit speakers.

*1 Audio output from unit is converted to 48 kHz/16 bit in addition to audio from digital audio output.
To enjoy high quality sound at 48 kHz/20 bit / 24 bit or 96 kHz, connect the amplifier or decoder directly to the audio output connectors, not to the digital audio output connector. [Select "OFF" at the "LPCM (DVD)".]

*2 When connecting an amplifier (with an optical digital input connector) which does not contain the Dolby Digital or dts decoder, be sure to select "OFF".
If "Bitstream" is selected, starting DVD play may cause such a high level of noise as to be harmful to your ears and damage the speakers.

*3 When a dts decoder is connected, please select "Bitstream" in "dts". If "OFF" is selected, there will be no sound.

Notes

- Turn off other surround effects when using this surround effect.
- For optimum effect, the distance between the unit and the listener should be about 3 or 4 times the distance between the right and left front speakers.

*Important: If a remote control button does not work when pressed, press the DVD button on the remote and try the button again.

STILL MODE

Set to reduce jitter in a displayed still picture or a motion picture.

1 **Do steps 1 and 2 on page 57.**

2

```
DVD MAIN MENU
DISC LANGUAGES
AUDIO OUTPUT
STILL MODE        : FIELD
TV MODE           : Letterbox

SELECT  : ▲ ▼
SET     : SET
END     : ACTION
```

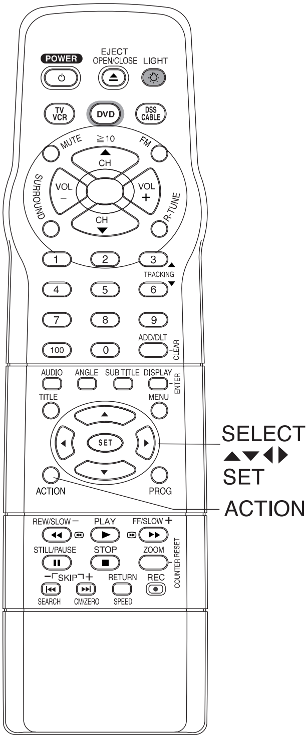
1) **Press ▲▼** to select "STILL MODE."
2) **Press SET** repeatedly for mode. (See below)

AUTO: "FIELD" (Field still) or "FRAME" (Frame still) is automatically selected during the still mode. (Factory preset)

FIELD: "FIELD" (Field still) is always selected. This setting will reduce jitter when compared with "AUTO" on some discs.

FRAME: "FRAME" (Frame still) is always selected. Some texts and fine patterns will be seen clearly when compared with "AUTO" on some discs.

3 **Press ACTION** twice to exit this mode.



Selecting TV MODE

Set the screen display style for wide-screen video material playback.

a **Do steps 1 and 2 on page 57.**

b

```
DVD MAIN MENU
DISC LANGUAGES
AUDIO OUTPUT
STILL MODE        : FILED
TV MODE           : Letterbox

SELECT  : ▲ ▼
SET     : SET
END     : ACTION
```

1) **Press ▲▼** to select "TV MODE."
2) **Press SET** repeatedly for mode. (See below.)

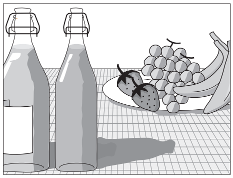
Pan & Scan : (Factory preset) Wide screen video data is played in Pan & Scan style (left and right of screen is trimmed.)
- Video data not formatted in Pan & Scan will play in letterbox style.

Letterbox : Wide screen video data is played in Letterbox style (top and bottom of screen has black margin).

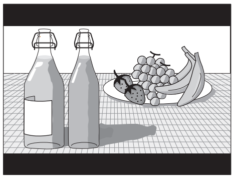
c **Press ACTION** twice to exit this mode.

Example

- Pan & Scan (Factory preset)



- Letterbox



For Your Information

Before Requesting Service

Check the following points once again if you are having trouble with your unit.

Power	Correction
No power…	• Completely insert Power Plug into an AC outlet. • Set POWER button to ON.
Power turns itself off...	• Auto power-off (shutoff) occurs after about 5 min. in DVD mode with no operation, or if there is no broadcast signal in TV or Playback mode. Turn the power back on. (P. 21, 37)

Monitor	Correction
No picture or sound...	• Make sure your antenna system (TV or CABLE), is correctly set. (P. 11) • Completely insert Power Plug into an AC outlet. • Set POWER button to ON.
Poor picture with normal sound...	• Adjust BRIGHTNESS, SHARPNESS, and PICTURE controls in the SET UP Video Adjustment. (P. 47)
Poor sound with normal picture...	• Adjust VOLUME control. (P. 22)
Poor TV reception...	• Adjust SHARPNESS and PICTURE controls in the SET UP Video Adjustment. (P. 47)
No color or poor color...	• Adjust TINT and COLOR controls in the SET UP Video Adjustment. (P. 47)
Ghost (multiple) images...	• Install a directional antenna.
TV programs cannot be watched...	• Make sure the selected channel is in unit's memory. (P. 16)
Channel cannot be selected...	• Only the channel begin recorded can be viewed on this unit.

VCR	Correction
TV program cannot be recorded...	• Make sure your antenna system (TV or CABLE), is correctly set. (P. 11) • Make sure cassette record tab is intact. (P. 4)
Timer recording cannot be performed…	• Check that clock is set to current time and date. • Make sure DSS/CABLE box (if used) is left on and tuned to channel to be recorded. • Set recording Start/Stop times correctly. (P. 30, 31) • Timer recording may not be performed or continued if a power interruption of more than 1 minute occurs before or during a Timer Recording, even after power is restored.
No playback picture, or the playback picture is noisy or contains streaks...	• Adjust TRACKING control in either direction. (P. 6) • Try Head Cleaning. (P. 6)
VCR cannot be controlled...	• Make sure VCR LOCK is set to off. (P. 39)

Remote Control	Correction
Unit cannot be controlled...	• Aim Remote directly at the remote sensor on the unit. (P. 10) • Avoid any object blocking signal path. • Inspect the remote batteries. (P. 4) • Make sure VCR LOCK is set to off. (P. 39) • Exposing unit remote sensor to direct fluorescent or outdoor light may cause signal interference.
ACTION, PLAY, SELECT, SET POWER, etc. buttons cannot be selected...	• Press TV/VCR for TV-VCR mode. (P. 32) • Press DVD for DVD mode. (P. 32) • Press FM for FM mode. (P. 32) • Check remote batteries.

DVD/Video CD/CD	Correction
Play fails to start even when PLAY is pressed...	• This unit cannot play discs other than DVDs, Video CDs and CDs. • The disc may be dirty and require cleaning.
Play starts but then stops immediately...	• Be sure disc is installed with label side up.
Picture is distorted during rapid advance or rapid reverse...	• The picture will be somewhat distorted at times: this is normal.
No Forward/Reverse search play...	• Some discs may have sections which prohibit Forward/ Reverse search. (P. 21)
Play does not start even when title is selected...	• Confirm the "DVD LOCK" setting. (P. 56)
Audio soundtrack and/or subtitle language is not the one selected at the initial settings...	• If the audio soundtrack and/or subtitle language selected at DVD initial settings does not exist on the disc, it will not be accessible.
No subtitles...	• Subtitles appear only when available on disc. • Select "ON" at the "Subtitle Language" section (P. 48) to display subtitles.
Alternative audio soundtrack (or subtitle) language cannot be selected...	• Alternative language cannot be selected with discs which do not contain more than one language. • For some discs, alternative language cannot be selected with the AUDIO or SUB TITLE button. Try selecting it from the DVD menu if available.
Angle cannot be changed...	• This function is dependent on software availability. Even if disc has multiple angles, they may be recorded for specific scenes only (ANGLE Indicator on unit lights up). (P. 49)

Miscellaneous	Correction
Video cassette cannot be inserted...	• Insert the cassette window side up; record tab facing you.
Video cassette cannot be removed...	• Completely insert Power Plug into an AC outlet.
Eject does not function or insertion cannot be done...	• Turn the POWER off and then on, and try ejecting or inserting the tape again.
Video cassette ejects when a recording is started, or the power is turned off for timer recording...	• Make sure cassette record tab is intact. (P. 4)
The disc cannot be removed...	• First, unplug unit. Then, prepare a rigid wire (e.g. an extended paper clip, etc.) and, applying moderate force, insert it straight into the hole at the base of the tray. The tray will eject a little. Now, pull the tray all the way out and remove the disc. (P. 9)
In Stop mode, the VCR motor (CYLINDER) continues to rotate...	• To enable Quick Play mechanism, the VCR cylinder will rotate for about 3 minutes. This reduces response time from Stop to Play mode and from Play to Rewind Search mode.

If you cannot resolve the problem, please call the Customer Call Center for product assistance at 1-800-211-PANA (7262.)
To locate an authorized servicenter, please call toll free 1-800-211-PANA (7262.) or send e-mail to : consumerproducts@panasonic.com

Warning and Instruction Displays

These displays will alert you of a missed operation or provide further instructions.

OSD	Caution	Page
PLEASE SET CLOCK BEFORE PROGRAMMING	• If you attempt to set or review a Timer Recording or set the On-Timer and the Clock is not set...	16, 17
CHECK CASSETTE RECORD TAB	• If you press REC, and a cassette is inserted with no record tab...	4, 18
TO CANCEL TIMER REC HOLD DOWN STOP KEY FOR APPROX 3 SEC	• If you press STOP during a Timer Recording...	31
NO CASSETTE PLEASE INSERT A CASSETTE	• If you press PLAY, FF, REW, or REC without a cassette inserted...	18
PLEASE PREPARE FOR TIMER REC	• If the unit is not in Stop mode or a cassette with record tab is not inserted two minutes before a Timer Recording is about to begin...	30, 31
VIDEO HEADS MAY NEED CLEANING PLEASE INSERT HEAD CLEANING CASSETTE OR REFER TO MANUAL END: PLAY	• If head cleaning becomes necessary while playing back a tape...	6
VCR LOCK ACTIVATED	• If you press a function button other than STOP/EJECT or POWER while the unit is in VCR Lock mode...	39
PLEASE CHECK THE DISC, AND FOR STAINS OR SCRATCHES ON DISC	• If you press PLAY, or the unit reads data from a stained or scratched disc in DVD mode. Also, if the type of disc is other than DVD, Video CD or CD...	7
IT IS PROHIBITED TO COPY DVD/VIDEO CD/CD TO VHS	• If you press REC in DVD mode...	18, 19

Language Code List

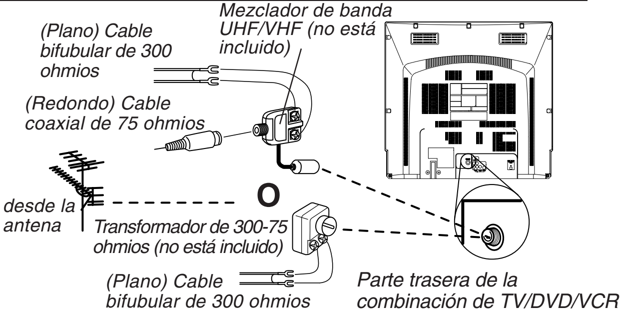
Enter the appropriate code number for the initial settings “AUDIO”, “SUBTITLE” and/or “MENUS” (see page 57).

Code	Language
6565	Afar
6566	Abkhazian
6570	Afrikaans
6577	Ameharic
6582	Arabic
6583	Assamese
6588	Aymara
6590	Azerbaijani
6665	Bashkir
6669	Byelorussian
6671	Bulgarian
6672	Bihari
6678	Bengali; Bangla
6679	Tibetan
6682	Breton
6765	Catalan
6779	Corsican
6783	Czech
6789	Welsh
6865	Danish
6869	German
6890	Bhutani
6976	Greek
6978	English
6979	Esperanto
6983	Spanish
6984	Estonian
6985	Basque
7065	Persian
7073	Finnish
7074	Fiji
7079	Faroese
7082	French
7089	Frisian
7165	Irish
7168	Scots Gaelic
7176	Galician
7178	Guarani
7185	Gujarati
7265	Hausa
7273	Hindi
7282	Croatian
7285	Hungarian
7289	Armenian
7365	Interlingua
7378	Indonesian
7383	Icelandic
7384	Italian
7387	Hebrew
7465	Japanese
7473	Yiddish
7487	Javanese
7565	Georgian
7575	Kazakh
7576	Greenlandic
7577	Cambodian
7578	Kannada
7579	Korean
7583	Kashmiri
7585	Kurdish
7589	Kirghiz
7665	Latin
7678	Lingala
7679	Laothian
7684	Lithuanian
7686	Latvian, Lettish
7771	Malagasy
7773	Maori
7775	Macedonian
7776	Malayalam
7778	Mongolian
7779	Moldavian
7782	Marathi
7783	Malay
7784	Maltese
7789	Burmese
7865	Nauru
7869	Nepali
7876	Dutch
7879	Norwegian
7982	Oriya
8065	Panjabi
8076	Polish
8083	Pashto, Pushto
8084	Portuguese
8185	Quechua
8277	Rhaeto-Romance
8279	Romanian
8285	Russian
8365	Sanskrit
8368	Sindhi
8372	Serbo-Croatian
8373	Singhalese
8375	Slovak
8376	Slovenian
8377	Samoan
8378	Shona
8379	Somali
8381	Albanian
8382	Serbian
8385	Sundanese
8386	Swedish
8387	Swahili
8465	Tamil
8469	Telugu
8471	Tajik
8472	Thai
8473	Tigrinya
8475	Turkmen
8476	Tagalog
8479	Tonga
8482	Turkish
8484	Tatar
8487	Twi
8575	Ukrainian
8582	Urdu
8590	Uzbek
8673	Vietnamese
8679	Volapük
8779	Wolof
8872	Xhosa
8979	Yoruba
9072	Chinese
9085	Zulu

Conexión de la antena externa

Desenganche la antena del televisor o de la videograbadora que tuviera anteriormente y conéctela a la parte trasera del registrador Combinación de TV/DVD/VDR, como se muestra en el diagrama. Si el sistema de su antena tiene conductores UHF y VHF separados, usted necesita un mezclador de banda UHF/VHF (no viene con el equipo.)

ADVERTENCIA:
Al utilizar cables coaxiales RF del "Tipo tuerca", solo debe apretarse con los dedos. Si se aprieta demasiado los cables pueden resultar dañados.

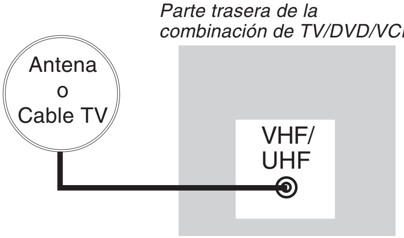


Conexiones de TV cable

■ Sin un decodificador de TV cable

Podrá;
- grabar o ver canales sin codificar.

No Podrá;
- grabar o ver canales codificados.
- ver otro canal que no sea el seleccionado para cualquier tipo de grabación.



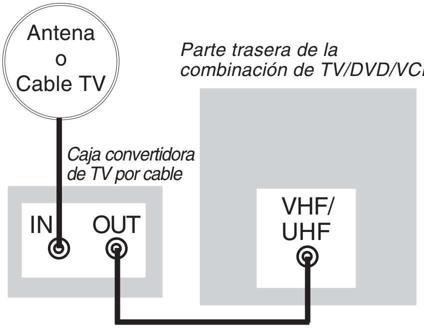
■ Con un decodificador de TV cable

Podrá;
- grabar o ver cualquier canal incluso los canales codificados.

NOTA : El canal deberá ser seleccionado en el decodificador de TV cable.

No Podrá;
- ver otro canal que no sea el seleccionado para cualquier tipo de grabación.
- hacer una grabación con temporizador de un canal a menos que lo seleccione en el decodificador de TV cable.

Para ver y grabar un canal codificado/ no codificado
Sintonice el canal del Registrador de la combinación de VCR/TV en el canal de salida de la caja convertidora de televisión por cable (por ejemple el canal 3.) Después, seleccione en el decodificador de TV cable el canal que se quiera ver o grabar.



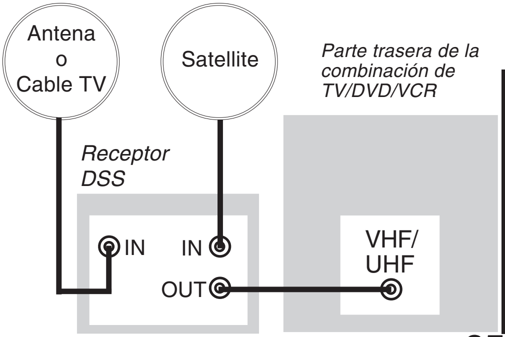
■ Con un receptor DSS

Podrá;
- grabar o ver cualquier canal incluso los canales codificados.

NOTA : El canal deberá ser seleccionado en el receptor DSS.

No Podrá;
- ver otro canal que no sea el seleccionado para cualquier tipo de grabación.
- hacer una grabación con temporizador de un canal a menos que lo seleccione en el receptor DSS.

NOTA : El receptor DSS debe estar apagado para ver programas desde un decodificador de TV cable o desde la antena. Consulte el manual del receptor DSS para más detalles.



Spanish Quick Use Guide/Gú a para á pida consulta

Realizando Configuracion Inicial

Presione TV/VCR para modo del TV-VCR

1 **Tape el cable electrico de la unidad en el enchufe de pared de la CA.**

2 **POWER de la prensa en el telecontrol o la unidad. La unidad se adelanta y comienzo auto del canal y del reloj.**

CH AUTO SET PROCEEDING

- Si usa convertidor de cable, enciendala y seleccione el Servicio Publico de Canales de Television (PBS) en su horario de uso o tiempo de su zona. Si utiliza receptor DSS este debe de estar apagado.

AUTO CLOCK SET
PROCEEDING
CANCEL : PRESS STOP KEY

3 **Selecciones se realizaran automaticamente cuando la configuracion termine, la pantalla siguiente aparecera.**

2/ 6/2002 WED 12:00PM
DST:ON
SETTING : CH 10
AUTO CLOCK SET
COMPLETED

Si “AUTO CLOCK SET IS INCOMPLETE” aparece en pantalla, coloque el tiempo usando el procedimiento manual (MANUAL CLOCK SET), vealo enseguida.

SET CLOCK
2/ 6/2002 WED 12:00PM
DST:ON
SET COMPLETED
SET : SET
START : ACTION
BACK:◀

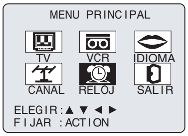
Ajuste Manual del Reloj

Si el ajuste automático del reloj no se ha completado, ajuste el reloj manualmente de la siguiente manera:

1) Presione la tecla ACTION en el control remoto para visualizar la pantalla del menú RELOJ.
2) Presione ▲▼ para seleccionar el mes y SET para ajustar. De la misma forma, seleccione y ajuste la fecha, año, hora y DST (Hora de Verano).
3) Presione dos veces la tecla ACTION para poner el RELOJ en marcha y salir.

Ajustar de nuevo el reloj

1 Presione ACTION para exhiba el menú.

2 

Presione ▲▼◀▶ para seleccionar “RELOJ”. Presione SET.

3 FIJAR RELOJ
FIJACION AUTOMATICA
MANUAL
AJUSTE ZONA HORA : 0
ELEGIR:▲ ▼
FIJAR :SET
TERMINAR:ACTION

Presione ▲▼ para seleccionar “MANUAL” y luego presione SET.

4 FIJAR RELOJ
1/--/---- --:--
VERANO:ACT
ELEGIR MES
ELEGIR:▲ ▼
FIJAR :SET
TERMINAR:ACTION

Presione ▲▼ y SET para seleccionar y ajustar la hora y la fecha.

5 Presione ACTION dos veces para <u>que el reloj comience a funcionar</u> y salir desde este modo.

Operaciones básicas para la reproducción

1 **Inserte un cassette.**
- El videograbador combinado se enciende automáticamente.

2 **Presione PLAY.**
- La reproducción comienza automáticamente si el cassette no tiene la lengüeta para prevención de grabación.

- ■ Para encontrar una escena en particular
  Búsqueda hacia adelante ➔ Presione FF/SLOW+
  Búsqueda hacia atrás ➔ Presione REW/SLOW-
- ■ Para ver una imagen fija (congelada) ➔ Presione STILL/PAUSE
- ■ Para ver en cámara lenta ➔ Presione FF/SLOW+ o REW/SLOW- en el modo de imagen fija
- ■ Para ver imágenes cuadro a cuadro ➔ Presione STILL/PAUSE en el modo de imagen fija
- ■ Para parar ➔ Presione STOP
- ■ Para rebobinar la cinta ➔ Presione REW/SLOW-
- ■ Para hacer avanzar la cinta rápidamente ➔ Presione FF/SLOW+
- ■ Para expulsar el cassette ➔ Presione EJECT en el control remoto o STOP/EJECT en el videograbador combinado

Operaciones básicas para la grabación

1 **Inserte un el cassette con la lengüeta para prevención de grabado.**
- El videograbador combinado se enciende automáticamente.

2 **Seleccione el canal.**
Presione CH ▲▼ o las teclas numéricas correspondiente.

3 **Seleccione la velocidad de grabación.**
Presione SPEED.
SP = reproducción normal
LP = reproducción larga
SLP = reproducción super larga
- La velocidad seleccionada debe aparecer en la pantalla.

4 **Comience la grabación.**
Presione REC.
- Para editar partes no deseadas de una grabación, presione STILL/PAUSE para hacer una pausa durante la grabación.
- No podrá ver otro canal durante la grabación.

- ■ Para parar ➔ Presione STOP.
- ■ **El videograbador combinado deja de grabar a una hora prefijada.**
  (Grabación de un toque)
  Presione REC repetidamente para ajustar la hora de grabación (30 min - 4 horas.)

Grabación con temporizador

1 **Exhiba FIJAR PROGRAMACION.**
Presione PROG.

2

```
FIJAR PROGRAMACION
TEMPORIZADOR
ENCENDIDO AUTOMATICO
TEMPORIZADOR-DORMIR:00

ELEGIR:▲ ▼
FIJAR  :SET
TERMINAR:PROG
```

Exhiba TEMPORIZADOR.
1) Presione ▲▼ para seleccionar.
2) Presione SET para exhibir.

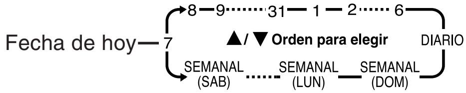
- Si ya existe un programa en la memoria, presione ▲▼ y SET para seleccionar un número de programa sin usar.

3

```
FECHA  INICIO  PARADA  CA
7 VIE  --:--   --:--   --
HOY                    SLP
------------------------
ELEGIR FECHA DE INICIO
ELEGIR:▲ ▼
FIJAR  :SET
TERMINAR:PROG
```

Ajuste la fecha de grabación.
1) Presione ▲▼ para seleccionar.
2) Presione SET o ◀ ▶ para ajustar.

- 1 - 31 = Grabación única
- DIARIO = a la misma hora de lunes a viernes
- SEMANAL = a la misma hora una vez a la semana



Repita el paso 3 para ajustar:
hora de comienzo, hora de parada, canal (o LINEA para una fuente exterior), velocidad (SP, LP, SLP).

4

```
P FE  INIC  PARADA CA VEL
1 DI  9:00p 12:00a 08 SP
2 --  --:-- --:--  -- --
3 --  --:-- --:--  -- --
4 --  --:-- --:--  -- --

CANCELAR:ADD/DLT
ELEGIR 1-8:▲ ▼
ENTRAR:SET
TERMINAR:PROG
```

Termine el programa.
Presione PROG
Para introducir más programas.
presione ▲▼ y SET para seleccionar y ajustar el número de programa en blanco, y luego repita los pasos 3.

5 **Salga de este modo.**
Presione PROG dos veces
- Si está usando un decodificador de TV cable, asegúrese que se encuentra en el canal deseado y que la alimentación queda conectada para grabar con temporizador.
- El indicador PROG TIMER se enciende en el videograbador combinado.

Spanish Quick Use Guide/Guía para rápida consulta

Operaciones básicas del DVD

1 **Presione POWER en el control remoto o el aparato.**

2 **Elija el modo DVD**
Presione DVD.

3 **Introducir un disco.**
1) Presione OPEN/CLOSE.
2) Ponga un disco en la bandeja de disco.
- Sujete el disco sin tocar ninguna de sus superficies, póngalo con el lado donde esté impreso el título hacia arriba, alinéelo con las guías y póngalo en su posición apropiada. Disco de 3”(8 cm) Disco de 5” (12 cm)

4 **Iniciar la reproducción**
Presione PLAY.
La bandeja del disco se cierra automáticamente.
- Si está usando un DVD interactivo (Interactive DVD) o un Vídeo CD con contol de reproducción (playback control) y aparece un menú de títulos (TITLE MENU) en la pantalla, siga al paso 5.

5 **Elija el artículo deseado.**
1) Presione ▲▼◀ ▶ o las teclas numéricas.
2) Presione SET para la reproducción.
Si usa las teclas numéricas, la reproducción comienza automáticamente.

6 **Parar la reproducción.**
Presione STOP.

7 **Expulsar el disco.**
Presione OPEN/CLOSE.

- **Para buscar una escena particular**
  Búsqueda hacia adelante
  Presione FF/SLOW+ en el modo de reproducción.
  Búsqueda hacia atrás
  Presione REW/SLOW- en el modo de reproducción.
  (Para liberar, presione PLAY)
- **Para saltar un capítulo o una pista**
  Salto hacia adelante
  Presione SKIP ▶▶▎ en el modo de reproducción.
  Un capítulo (DVD) o una pista (Vídeo CD/CD) se salta cada ves que se oprime la tecla.
  Salto hacia atrás
  Presione ▎◀◀ SKIP en el modo de reproducción.
- **Para ver una imagen fija**
  Presione STILL/PAUSE durante la reproducción.
  (Para liberar, presione PLAY)
- **Para ver imágenes cuadro a cuadro (DVD/Vídeo CD)**
  Presione STILL/PAUSE en el modo de imagen fija.
  La imagen avanza un cuadro cada vez que presiona la tecla.
  (Para volver a la reproducción normal, presione PLAY.)
- **Para ver en cámara lenta (DVD/Vídeo CD)**
  Presione FF/SLOW+ o REW/SLOW- en el modo de imagen fija.
  (Para liberar, presione PLAY)

Funcionnamiento del DVD utilizando visualizaciones en pantalla

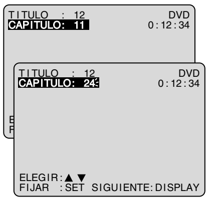
Cuando se presiona DISPLAY, la visualización en pantalla muestra la información del disco (título / capítulo / número de lista, tiempo transcurrido de reproducción, audio / idioma del subtítulo, y ángulo) e información (repetir la reproducción, modo reproducción, Karaoke vocal encendido / apagado, etc.).

1 **Visualizar Visualizaciones en pantalla.**
Presione DISPLAY en el modo reproducción o parada.
- Cada vez que se presione DISPLAY, la visualización en pantalla cambia como se muestra a continuación.

→ Información seleccionada del disco
↓
Información seleccionada de la unidad
↓
Pantalla normal

2 **Selección del ítem deseado**
1)Presione ▲▼ (o ◀ ▶) para seleccionar.
2)Presione SET para ajustar

3 <Ejemplo de DVD>



Selección del ajuste deseado
1)Presione ▲▼ para seleccionar.
2)Presione SET para ajustar.

<Ejemplo de Vídeo CD>



Para volver a la pantalla normal, Presione repetidamente CLEAR o DISPLAY.

Cambio del idioma de subtítulos [DVD solamente]

El idioma de los subtítulos seleccionado al hacer las fijaciones iniciales se puede cambiar por otro idioma diferente, si éste se encuentra disponible.

1



Presione SUBTITLE durante la reproducción.
Cuando no haya subtítulos grabados, "-" se visualizará en lugar del número de idioma.

2

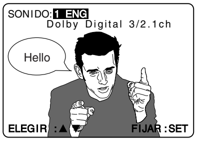


Seleccionar el idioma deseado.
1) Presione ▲▼ para seleccionar idioma.
2) Presione ▶ (o ◀) para ajustar.
3) Presione ▲ (o ▼) para seleccionar "ACTIVO" o "INACTIVO."

Cambio del idioma de la pista de sonido [DVD solamente]

El idioma de la pista de sonido seleccionado al hacer las fijaciones iniciales se puede cambiar por otro idioma diferente, si éste se encuentra disponible.

1



Visualizar la pantalla AUDIO.
Presione AUDIO durante la reproducción.

2

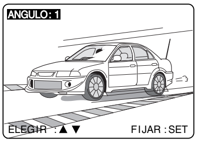


Seleccionar el idioma deseado.
Presione ▲▼ para seleccionar idioma.

Visión desde otro ángulo [DVD solamente]

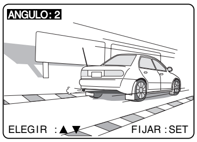
Algunos discos DVD tienen escenas que han sido filmadas simultáneamente desde un número de ángulos diferentes. Con estos discos, la misma escena podrá verse desde cada uno de estos ángulos diferentes utilizando el botón ANGLE.

1



Visualizar la pantalla de ángulo.
Presione ANGLE durante la reproducción.

2



Seleccionar el ángulo deseado.
Presione ▲▼ para seleccionar.

Selección de vocal para los discos de Karaoke [DVD/Video CD]

1 **Visualizar la pantalla AUDIO.**
Presione AUDIO durante la reproducción.

2

SONIDO: 2 ENG VOZ ACTIVO
ELEGIR : ▲ ▼ FIJAR : SET

Seleccionar el ajuste deseado.
1) Presione ▲▼ (o ◀ ▶) para seleccionar.
2) Presione ▶ (o ◀) para ajustar. (DVD solamente)

- DVD Karaoke (1 vocal) — VOCAL ON ⟷ VOCAL OFF
- DVD Karaoke (2 vocales) — VOCAL V1 + V2 ➔ VOCAL V1 ➔ VOCAL V2 ➔ VOCAL OFF ➔ VOCAL V1 + V2
- Video CD — LR ➔ L ➔ R

Utilización de un menú de títulos [DVD solamente]

Algunos discos con películas, por ejemplo, vienen con dos o más títulos. Si el disco tiene un menú de títulos grabados, el botón TITLE podrá utilizarse para seleccionar el título de la película.

1 **Presione TITLE durante la reproducción.**
Ahora se visualiza una lista de los títulos del disco.

2

TITLE MENU
Dogs | Castles
Lover
Dogs
of the world

Seleccionar el título deseado.
1) Presione ▲▼ ◀ ▶ o las teclas numéricas seleccionar.
2) Presione SET o PLAY.

Utilización de un menu de DVD [DVD solamente]

Algunos discos DVD tienen estructuras únicas de menús llamadas menús DVD. Por ejemplo, los DVDs programados con un contenido complejo proporcionan menús guía, y los grabados con varios idiomas proporcionan menús para audio e idiomas de subtítulos. Aunque los contenidos de los menús DVD y la operación cambian de disco a disco, a continuación se explica la operación básica cuando se utiliza esta característica.

1 **Presione MENU durante la reproducción.**
El menú de DVD introducido en el disco se visualiza ahora.

2

DVD MENU
1 . SUBTITLE
2 . AUDIO
3 . ANGLE

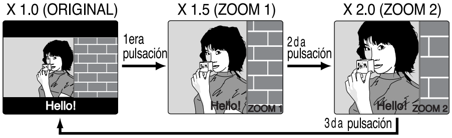
Seleccionar el ítem deseado.
1) Presione ▲▼ ◀ ▶ o las teclas numéricas para seleccionar.
2) Presione SET o PLAY.

Ampliación de la imagen [DVD solamente]

Durante la reproducción de un DVD, puede ampliar partes específicas de una imagen y seleccionar la relación de zoom usando el botón ZOOM del control remoto.

Seleccione el tamaño de la imagen.
Presione ZOOM repetidamente para cambiar el tamaño de la imagen como se indica a continuación:

X 1.0 (ORIGINAL) X 1.5 (ZOOM 1) X 2.0 (ZOOM 2)



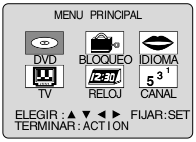
■ Use los botones ▲ y ▼ para desplazar la posición hacia arriba o hacia abajo.
■ Use los botones ◀ y ▶ para desplazar la posición hacia la izquierda o hacia la derecha.

Reproducción programada [Vídeo CD/CD]

Puede usted programar pistas específicas y el orden de reproducción.
• Vídeo CD o CD es insertado en el modeo DVD.

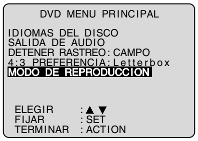
1 Visualizar MAIN MENU.
Presione ACTION en el modo parada.

2



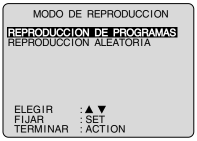
Vísualizar la pantalla DVD.
1) Presione ▲▼◄► para seleccionar "DVD."
2) Presione SET para visualizar.

3



Seleccionar "MODO DE REPRODUCCION."
1) Presione ▲▼ para seleccionar.
2) Presione SET para visualizar.

4



Seleccionar "REPRODUCCION DE PROGRAMAS."
1) Presione ▲▼ para seleccionar.
2) Presione SET para visualizar.

5



Seleccionar el número de la pista deseada. (Se visualizan los números de la pista del disco).
1) Presione ▲▼◄► para seleccionar.
2) Presione SET para seleccionar.
• Repita el paso 5 para seleccionar otra pista.
• La pista seleccionada se añade a la parte derecha.

6



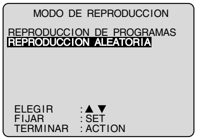
Comenzar "REPRODUCCION DE PROGRAMAS."
1) Presione ▲▼◄► para seleccionar "INICIAR."
2) Presione SET.
• La reproducción comienza en la secuencia programada.
• Para cancelar, pulsar STOP durante la reproducción y luego presione CLEAR.

Reproducción arbitraria [Vídeo CD/CD]

Las pistas se reproducen de forma arbitraria.

1 Repita los pasos 1-3 de la página anterior.

2



Seleccionar "REPRODUCCION ALEATORIA."
1) Presione ▲▼ para seleccionar.
2) Presione SET.
• Comienza la reproducción arbitraria.
• Para cancelar, presione STOP durante la reproducción y luego presione CLEAR.

Fijaciones iniciales

1 Visualizar MAIN MENU.
Presione ACTION en el modo de parada.

2 Visualizar la pantalla DVD.
1) Presione ▲▼◄► para seleccionar.
2) Presione SET.

3 Seleccionar el artículo deseado.
1) Presione ▲▼ para seleccionar.
2) Presione SET.

IDIOMAS DEL DISCO
Todos los idiomas ofrecidos en el disco pueden ser ajustados, Si el idioma ajustado no es ofrecido en el disco, se seleccionará el idioma original del disco.

SALIDA DE AUDIO
Puede usted ajustar la salida audio procedente del terminal de salida audio digital.

DETENER RASTREO
Para seleccionar "CAMPO" o "CUADRO" para prevenir inestabilidad o para permitir ver textos pequeños o patrones finos claramente en el modo de imagen fija.

4 : 3 PREFERENCIA
Para seleccionar si el material del vídeo para pantalla ancha será vuelto a reproducir en el estilo Pan&Scan o en el estilo Letterbox en la pantalla.

4 Seleccionar el artículo deseado.
1) Presione ▲▼ para seleccionar.
2) Presione SET.

5 Volver a visualizar el menú de DVD para continuar el ajuste.
Presione ACTION y pase al paso 3 para ajustar otro ajuste o, para salir, presione ACTION tres veces.

Selección de IDIOMAS DEL DISCO [DVD solamente]

Seleccione "AUDIO" Inglés / Español / Francés :
(Fijación de fábrica : inglés)
Original : Se seleccionará el idioma original de cada disco.

OTRO ** :** Se puede seleccionar el otro idioma.

Seleccione "SUBTITULO"
AUTO : Se seleccionará el mismo que fue seleccionado en la preparación de "AUDIO". (Fijación de fábrica)
• Si el idioma seleccionado en la preparación de "AUDIO" se utiliza durante la reproducción, los subtítulos no aparecerán.
• Si se utiliza otro idioma durante la reproducción, los subtítulos aparecerán en el idioma seleccionado en la preparación de "AUDIO"

Inglés / Español / Francés

OTRO ** :** Se puede seleccionar el otro idioma.

Seleccione "MENU"
Inglés / Español / Francés : (Fijación de fábrica : inglés)
OTRO ** :** Se puede seleccionar el otro idioma.

Selección de SALIDA DE AUDIO

Seleccione "LPCM(DVD)"

INACTIVO : Por el conector de salida de audio digital solamente sale PCM lineal de 48 kHz/16 bits. Durante la reproducción del DVD grabado en el PCM lineal de 48 kHz/20 bits o 96 kHz, no sale audio digital. (Fijación de fábrica)

PCM : Durante la reproducción del DVD grabado en el PCM lineal de 48 kHz/ 20 bits/24 bits o 96 kHz, sale audio digital convertido a 48 kHz/16 bits. (La salida digital de audio PCM está restringida a 48 kHz/16bits o menos para proteger los derechos de autor.)

Seleccione "Dolby Digital"

Bitstream: Sale un flujo de bits Dolby digital (2ch-5.1ch). (Fijación de fábrica)

INACTIVO : No hay salida de audio.

Seleccione "dts"

Bitstream : Sale un flujo de bits dts. (Fijación de fábrica)

INACTIVO : No hay salida de audio.

Seleccione "DRC (Dynamic Range Compression)"

INACTIVO : Se selecciona el margen de audio normal.
(Fijación de fábrica)

ACTIVO : Seleccione este ajuste para disfrutar de un sonido dinámico incluso a bajo volumen. Esto es muy útil para escuchar durante la noche.
[Esta función sólo se activa con DVDs Dolby Digital.]

Seleccione "SURROUND"

El sonido envolvente crea el efecto de sonido que procede de altavoces que parecen ester en la parte de atrás aún cuando solo se ha conectado a un sistema estéreo de 2 canales.

INACTIVO : No efecto de sonido envolvente.
(Fijación de fábrica)

ACTIVO : Efecto de sonido envolvente.

Selección de DETENER RASTREO

AUTO : Durante el modo de imagen fija se seleccionarán automáticamente "Campo fijo" o "Cuadro fijo" (Fijacion de fabrica)

CAMPO : Seleccione este ajuste cuando ocurra "distorsión" en las imagenes, incluso cuando se haya seleccionado "AUTO".

CUADRO : "Cuadro fijo" es siempre seleccionado. Seleccionar este ajuste cuando no se puedan ver claramente texto pequeño o patrones finos incluso cuando esté seleccionado "AUTO".

Selección de 4 : 3 PREFERENCIA

Pan&Scan : Datos de la pantalla ancha de vídeo son reproducidos en el estilo Pan & Scan (la parte derecha e izquierda de la pantalla son recortadas). (Fijación de fábrica)

- Datos de vídeo no formateados en Pan & Scan serán reproducidos en el estilo letterbox.

Letterbox : Datos de la pantalla ancha de vídeo son reproducidos en el estilo Letterbox (la parte de arriba y abajo de la pantalla tienen un margen negro).

Index

TV / VCR

TV / VCR

DVD

PANASONIC CONSUMER ELECTRONICS COMPANY,
DIVISION OF MATSUSHITA ELECTRIC
CORPORATION OF AMERICA
One Panasonic Way Secaucus, New Jersey 07094

PANASONIC SALES COMPANY, DIVISION OF MATSUSHITA
ELECTRIC OF PUERTO RICO, INC.,
AVE. 65 de Infantería, Km. 9.5 San Gabriel Industrial Park,
Carolina, Puerto Rico 00985

Panasonic/Quasar Video Products
Limited Warranty

Limited Warranty Coverage
If your product does not work properly because of a defect in materials or workmanship, Panasonic Consumer Electronics Company or Panasonic Sales Company (collectively referred to as "the warrantor") will, for the length of the period indicated on the chart below, which starts with the date of original purchase ("warranty period"), at its option either (a) repair your product with new or refurbished parts, or (b) replace it with a new or a refurbished product. The decision to repair or replace will be made by the warrantor.

Product	Parts	Labor	Service	Contact Number
Camcorder	One (1) Year (except CCD Image Sensor) CCD Image Sensor - 6 (Six) Months	Ninety (90) Days Ninety (90) Days	Carry-In or Mail-In	1-800-211-PANA(7262)
DVD/VCR Deck, A/V Mixer	One (1) Year	Ninety (90) Days	Carry-In or Mail-In	1-800-211-PANA(7262)
TV/VCR, TV/DVD, TV/DVD/VCR Combination	One (1) Year (except CRT) CRT - Two (2) Years	Ninety (90) Days Ninety (90) Days	Carry-In: 21" CRT and Smaller In-Home or Carry-In: 22" CRT and Larger	1-800-211-PANA(7262)
TV/HDR Combination	One (1) Year (except CRT) CRT - Two (2) Years	Ninety (90) Days Ninety (90) Days	In-Home or Carry-In	1-888-843-9788
Rechargeable Batteries (in exchange for defective item)	Ten (10) Days	Not Applicable	Carry-In or Mail-In	1-800-211-PANA(7262)
Tape (in exchange for defective item)	Five (5) Days	Not Applicable	Carry-In or Mail-In	1-800-211-PANA(7262)
Memory Cards (in exchange for defective item)	Ninety (90) Days	Not Applicable	Carry-In or Mail-In	1-800-211-PANA(7262)

During the "Labor" warranty period there will be no charge for labor. During the "Parts" warranty period, there will be no charge for parts. You must carry-in or mail-in your product or arrange for in-home service, as applicable, during the warranty period.
If non-rechargeable batteries are included, they are not warranted. This warranty only applies to products purchased and serviced in the United States or Puerto Rico. This warranty is extended only to the original purchaser of a new product which was not sold "as is". A purchase receipt or other proof of the original purchase date is required for warranty service.

Carry-In, Mail-in or In-Home Service
For Carry-In, Mail-In or In-Home Service (as applicable) in the United States call toll free contact number listed above or visit Panasonic Web Site: http://www.panasonic.com
For assistance in Puerto Rico call Panasonic Sales Company (787)-750-4300 or fax (787)-768-2910.
In-Home service, if applicable, requires clear, complete and easy access to the product by the authorized servicer and does not include removal or re-installation of an installed product. It is possible that certain in-home repairs will not be completed in-home, but will require that the product, or parts of the product, be removed for shop diagnosis and/or repair and then returned.

Limited Warranty Limits And Exclusions
This warranty ONLY COVERS failures due to defects in materials or workmanship, and DOES NOT COVER normal wear and tear or cosmetic damage, nor does it cover markings or retained images on the picture tube resulting from viewing fixed images (including, among other things, letterbox pictures on standard 4:3 screen TV's, or non-expanded standard 4:3 pictures on wide screen TV's, or onscreen data in a stationary and fixed location). The warranty ALSO DOES NOT COVER damages which occurred in shipment, or failures which are caused by products not supplied by the warrantor, or failures which result from accidents, misuse, abuse, neglect, mishandling, misapplication, alteration, faulty installation, set-up adjustments, misadjustment of consumer controls, improper maintenance, power line surge, lightning damage, modification, or commercial use (such as in a hotel, office, restaurant, or other business), rental use of the product, service by anyone other than a Factory Servicenter or other Authorized Servicer, or damage that is attributable to acts of God.

THERE ARE NO EXPRESS WARRANTIES EXCEPT AS LISTED UNDER "LIMITED WARRANTY COVERAGE". THE WARRANTOR IS NOT LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OF THIS PRODUCT, OR ARISING OUT OF ANY BREACH OF THIS WARRANTY. (As examples, this excludes damages for lost time, cost of having someone remove or re-install an installed unit if applicable, or travel to and from the servicer, loss of media or images, data or other memory or recorded content. The items listed are not exclusive, but are for illustration only.)
ALL EXPRESS AND IMPLIED WARRANTIES, INCLUDING THE WARRANTY OF MERCHANTABILITY, ARE LIMITED TO THE PERIOD OF THE LIMITED WARRANTY.

Some states do not allow the exclusion or limitation of incidental or consequential damages, or limitations on how long an implied warranty lasts, so the exclusions may not apply to you.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state. If a problem with this product develops during or after the warranty period, you may contact your dealer or Servicenter. If the problem is not handled to your satisfaction, then write to the warrantor's Consumer Affairs Department at the addresses listed for the warrantor.

PARTS AND SERVICE (INCLUDING COST OF AN IN-HOME SERVICE CALL, WHERE APPLICABLE) WHICH ARE NOT COVERED BY THIS LIMITED WARRANTY ARE YOUR RESPONSIBILITY.

Customer Services Directory

For Product Information, Operating Assistance, Literature Request, Dealer Locations, and all Customer Service inquiries please contact:
1-800-211-PANA (7262), Monday-Friday 9 am-9 pm; Saturday-Sunday 9 am-7 pm, EST.
or send e-mail : consumerproducts@panasonic.com

Web Site: http://www.panasonic.com
You can purchase parts, accessories or locate your nearest servicenter by visiting our Web Site.

Accessory Purchases:

1-800-332-5368 (Customer Orders Only)
Panasonic Services Company 20421 84th Avenue South, Kent, WA 98032
(Monday-Friday 6 am-5 pm; Saturday 6 am-10:30 am, PST)
(Visa, MasterCard, Discover Card, American Express, Check)

Service in Puerto Rico
Matsushita Electric of Puerto Rico, Inc. Panasonic Sales Company/ Factory Servicenter:
Ave. 65 de Infantería, Km. 9.5, San Gabriel Industrial Park, Carolina, Puerto Rico 00985
Phone (787)750-4300 Fax (787)768-2910

As of February 2002

LSQT0521A

Panasonic Consumer Electronics Company,
Division of Matsushita Electric Corporation of America
One Panasonic Way Secaucus, New Jersey 07094

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NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

MAIN C.B.A. (VIDEO/AUDIO SECTION)

MODE / PIN NO.	STOP
IC3001	
1	5.0
2	3.4
3	2.1
4	5.0
5	2.7
6	---
7	5.2
8	5.2
9	2.3
10	2.8
11	0.8
12	2.8
13	0
14	0.4
15	1.0
16	0
17	2.3
18	3.2
19	2.7
20	3.1
21	5.0
22	0
23	2.5
24	2.5
25	0
26	2.5
27	2.0
28	0
29	0
30	1.8
31	2.0
32	2.4
33	0
34	0
35	---
36	0
37	0.1
38	0
39	2.3
40	3.5
41	2.8
42	0
43	0.1
44	2.6
45	2.6
46	2.6
47	5.0
48	---
49	0.1
50	---
51	5.0
52	2.6
53	2.5
54	0.4

MODE / PIN NO.	STOP
55	2.1
56	4.3
57	2.6
58	2.6
59	2.5
60	2.6
61	2.5
62	0
63	0
64	---
65	2.6
66	2.6
67	2.6
68	0.3
69	2.6
70	0.1
71	---
72	2.6
73	2.6
74	0
75	0.1
76	3.4
77	0
78	1.9
79	3.0
80	1.9
81	2.5
82	2.8
83	2.6
84	2.5
IC3201	
1	0.2
2	5.0
3	0.2
4	0
5	2.9
6	-2.8
7	2.1
8	2.9
IC3301	
1	0
2	2.6
3	0
4	0
5	0
6	2.8
7	5.2
8	---
9	0.1
10	0.1
11	0.1
12	0.1
13	5.2
14	2.8
15	2.8

MODE / PIN NO.	STOP
16	---
17	3.9
18	4.4
19	0.1
20	0.1
21	0.1
22	0
23	---
24	---
25	---
26	---
27	---
28	---
29	4.5
30	4.8
31	0.1
32	5.2
33	---
34	---
35	---
36	---
37	---
38	0.1
39	0.1
40	0.2
41	0.2
42	---
43	0.2
44	0.2
45	0.2
46	---
47	---
48	---
IC3302	
1	2.5
2	0
3	2.6
4	0
5	2.2
6	5.0
7	1.8
8	0
IC5101	
1	0
2	5.0
3	0
4	0
5	0
6	0
7	0
8	5.2
9	5.2
10	5.2
11	0
12	2.5

MODE / PIN NO.	STOP
13	0
14	2.3
15	2.7
16	3.4
17	3.4
18	2.2
19	0
20	2.4
21	1.5
22	0.6
23	5.0
24	1.4
25	2.5
26	2.5
27	3.5
28	0.7
IC5301	
1	2.7
2	0.1
3	0.1
4	---
5	2.1
6	2.1
7	0.1
8	0.1
9	0
10	3.9
11	0.1
12	0.1
13	4.3
14	6.2
15	0.2
16	0.2
17	0
18	0.2
19	0.2
20	0.2
21	0.2
22	3.8
23	3.8
24	9.1
25	3.6
26	9.0
27	0
28	0
29	0
30	5.8
31	6.3
32	3.5
33	6.4
34	8.2
35	0
36	0.1
37	9.7
38	9.0

MODE / PIN NO.	STOP
39	2.2
40	2.3
41	2.4
42	0
43	5.2
44	5.2
45	---
46	2.7
47	5.0
48	0.7
IC5302	
1	3.2
2	4.3
3	3.1
4	0
5	3.2
6	5.0
7	2.4
8	0
IC5351	
1	3.4
2	0
3	3.4
4	4.9
5	3.4
6	5.0
7	1.4
8	0
IC5361	
1	2.3
2	4.3
3	2.5
4	0.1
5	3.2
6	5.0
7	0.3
8	0
Q3001	
E	1.7
C	0
B	1.0
Q3002	
E	1.9
C	5.1
B	2.5
Q3004	
E	1.7
C	0.3
B	1.1
Q3301	
E	2.4
C	0
B	1.8

MODE / PIN NO.	STOP
Q3305	
E	0
C	4.4
B	0.3
Q4001	
E	5.1
C	5.1
B	4.3
Q4002	
E	0
C	0
B	0.8
Q4003	
E	0
C	0
B	0.8
Q4101	
E	0
C	0.6
B	0.5
Q4171	
E	0
C	0
B	0.2
Q5008	
E	1.4
C	0
B	0.7
Q5010	
E	0
C	0
B	1.4
Q5011	
E	3.0
C	5.7
B	3.6
Q5012	
E	6.3
C	0.1
B	5.7
Q5013	
E	0
C	0
B	0
Q5101	
E	3.5
C	9.1
B	4.1
Q5104	
E	2.0
C	9.1
B	2.6
Q5105	
E	2.4
C	0

MODE / PIN NO.	STOP
B	1.7
Q5107	
E	1.4
C	9.1
B	2.1
Q5108	
E	1.2
C	0
B	0.6
Q5110	
E	1.4
C	9.1
B	2.0
Q5114	
E	2.1
C	0
B	1.4
Q5118	
E	1.8
C	4.9
B	1.5
Q5119	
E	2.2
C	0
B	1.6
Q5120	
E	1.8
C	4.2
B	2.5
Q5121	
E	3.7
C	9.1
B	4.2
Q5125	
E	2.1
C	0.8
B	1.4
Q5151	
E	3.3
C	4.7
B	3.9
Q5152	
E	4.1
C	9.1
B	4.8
Q5301	
E	3.2
C	9.1
B	3.8
Q5302	
E	5.2
C	9.1
B	5.7
Q5501	
E	1.1

MODE / PIN NO.	STOP
C	0
B	0.3
Q5901	
E	9.1
C	12.1
B	9.7
TP3001	1.7
TP3002	2.8
TP3003	3.4
TP3004	2.0
TP3005	5.1
TP3006	2.6
TP3007	2.8
TP3008	2.4
TP3010	3.0
TP3011	2.7
TP3012	0
TP3013	8.5
TP3014	8.5
TP3019	2.9
TP3212	2.9
TP3301	3.5
TP3302	2.6
TP4001	0
TP4002	0
TP4003	0
TP4004	0
TP4011	0
TP4014	0
TP5301	3.5
TP5302	3.5
TP5303	3.6
TP5305	4.1
TP5307	1.7
TP5308	2.1
TP5309	1.7
TP5401	3.9
TP5402	2.3
TP5501	0.7
TP5503	1.7
TP5504	0
TP5505	0
TP5506	5.7
TP5310	5.8
TP5311	4.2
TP5313	0.1

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

MAIN C.B.A. (SYSTEM CONTROL/SERVO SECTION)

MODE / PIN NO.	REC	PLAY
IC6001		
1	0.3	5.2
2	5.2	5.2
3	5.2	5.2
4	5.2	5.2
5	5.2	5.2
6	0.1	5.1
7	0.1	5.2
8	5.2	5.2
9	0.3	0.2
10	0	1.2
11	0.2	0.8
12	0.2	0
13	0.2	0
14	0.3	0.3
15	0.3	0.3
16	0.3	0.2
17	0.3	0.2
18	0.3	0.2
19	0.4	0.2
20	0.3	2.3
21	0.3	0.2
22	0.2	0.2
23	0.2	0.2
24	0.1	0.2
25	---	---
26	0	2.6
27	0.1	2.6
28	0.1	0.5
29	5.2	0.5
30	0.6	0.5
31	0.1	0.6
32	5.1	0.4
33	2.7	3.2
34	2.6	2.8
35	5.0	5.0
36	5.2	0.3
37	2.4	0
38	2.4	2.5
39	0	0
40	0.3	0.3
41	0	0.3
42	0.4	0.3
43	4.4	0.3
44	4.8	0.3
45	0.3	0.4
46	5.2	0.3
47	0	0.3
48	0	0
49	0	0
50	2.7	2.8
51	5.0	5.0
52	0.5	4.5
53	0.6	5.1
54	0.9	0.3

MODE / PIN NO.	REC	PLAY
55	0	5.2
56	5.1	5.1
57	5.0	5.0
58	0	0
59	0	0
60	2.6	2.6
61	0	2.8
62	0	5.1
63	0	0.1
64	0	0.3
65	0	1.9
66	0.2	4.9
67	0	2.4
68	2.6	0.1
69	0	2.6
70	2.5	2.6
71	0	0
72	2.6	1.8
73	5.0	5.0
74	2.6	2.1
75	0	2.7
76	0	0.7
77	0.3	0.3
78	2.6	0
79	0.1	0
80	5.1	4.1
81	5.2	1.1
82	3.5	2.1
83	---	---
84	5.2	1.0
85	0	1.1
86	0	1.1
87	0	0.9
88	0	0.9
89	5.2	---
90	0	0.8
91	5.2	5.2
92	0	5.1
93	0	5.1
94	0	1.4
95	0	0
96	0	5.1
97	0	0
98	0	2.5
99	0	2.5
100	0.1	0.1
IC6002		
A	1.2	0
K	0	0
E	0	0
C	0.2	---
IC6003		
A	2.4	1.3
K	1.3	0
E	0	0

MODE / PIN NO.	REC	PLAY
C	5.2	3.6
IC6004		
1	0	0
2	0	0
3	0	0
4	0	0
5	5.2	4.8
6	5.2	5.0
7	0	0
8	5.0	5.0
IC6005		
1	5.1	5.2
2	5.0	5.0
3	0	0
4	0	0
5	5.0	5.0
6	0	0
Q6001		
E	12.1	12.2
C	11.9	0.6
B	11.3	12.3
Q6002		
E	4.4	0
C	11.3	12.2
B	5.0	0
Q6003		
E	0	0
C	0.1	0.2
B	0.6	0.6
Q6004		
E	5.0	5.1
C	5.0	5.1
B	4.3	4.4
Q6005		
E	5.1	5.2
C	5.0	5.1
B	4.3	4.3
Q6006		
E	0	0
C	5.0	0
B	0	0
Q6009		
E	0.1	0.1
C	5.0	5.0
Q6010		
E	0.1	0.1
C	4.8	5.1
TP6001	5.0	5.0
TP6002	4.2	4.9
TP6003	3.5	3.0
TP6004	0.2	0.2
TP6005	3.5	3.3
TP6008	0.1	0.1

MODE / PIN NO.	REC	PLAY
TP6009	5.2	5.2
TP6013	2.6	2.6
TP6099	5.0	5.0
TP6101	5.2	5.2
TP6103	4.9	4.9
TP6104	5.2	5.2
TP6105	5.0	5.0
TP6106	5.2	5.2
TP6107	0	0
TP6108	1.0	1.0
TP6109	5.0	5.0
TP6111	0	0
TP6201	2.3	2.3
TP6202	2.5	2.5
TP6203	2.6	2.6
TP6204	1.2	1.2
TP6205	2.6	2.6
TP6206	3.0	2.5
TP6207	2.6	2.5
TP6208	2.6	2.7
TP6209	2.4	2.4
TP6211	2.7	2.6
TP6401	0	0S

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

TV MAIN C.B.A.

MODE / PIN NO.	STOP
IC752	
1	3.0
2	3.7
3	3.7
4	0
5	5.3
6	0.1
7	6.9
8	12.0
IC850	
1	2.0
2	0.2
3	124.9
4	17.0
5	0
IC851	
1	0.2
2	20.1
3	2.7
4	2.4
IC852	
1	140.7
2	20.1
3	0
IC4601	
1	0.1
2	4.5
3	4.5
4	4.5
5	4.5
6	4.5
7	0
8	0
9	0
10	5.0
11	4.9
12	1.1
13	1.1
14	2.7
15	2.7
16	8.9
17	4.5
18	4.5
19	4.5
20	4.5
21	4.5
22	0
Q431	
E	0
C	0
B	0.3
Q501	
E	0
C	80.1
B	0.4
Q551	
E	140.8
C	0
B	140.5
Q751	
E	0.1
C	23.4
B	0.6
Q753	
E	7.4
C	0.6
B	6.9
Q754	
E	1.8
C	7.4
B	2.4
Q4501	
E	0.2
C	0
B	-0.5
Q4502	
E	0
C	0
B	-0.6
Q4503	
E	21.3
C	22.0
B	22.0
TP501	140.4
TP502	0.1
TP551	-2.4
TP552	-19.6
TP553	0.1
TP554	23.7
TP556	213.5
TP558	17.1
TP751	3.0
TP851	0
TP852	0
TP853	0
TP854	0
TP855	22.0
TP4501	22.0
TP4502	0
TP4504	0
TP4505	0
TP4506	2.4
TP4507	1.3

TUNER MAIN C.B.A.

MODE / PIN NO.	STOP
IC9551	
1	0
2	0
3	0
4	0
5	0
6	0
7	0
8	5.1
Q591	
E	0
C	12.2
B	0
Q801	
E	0
C	0.2
B	0.8
Q7001	
E	2.2
C	0
B	1.5
Q7101	
E	2.2
C	0
B	1.5
Q9501	
E	5.1
C	12.1
B	5.7
Q9502	
E	5.1
C	12.1
B	5.7
Q9503	
E	3.3
C	9.4
B	3.9
Q9504	
E	8.6
C	12.1
B	9.2
TP802	120.0
TP803	120.0
TP804	160.0
TP805	0
TP9501	0
TP9502	0
TP9551	0
TP9552	0
TP9553	0
TP9554	0

POWER SUPPLY C.B.A.

MODE / PIN NO.	STOP
IC1001	
1	5.2
2	4.2
3	6.6
4	2.0
IC1002	
1	2.6
2	0
3	4.2
IC1502	
1	0
2	0
3	0
4	0.5
IC1503	
1	0
2	0
3	0
IC1504	
1	0
2	0
3	0
4	0
5	0
6	0.2
7	0
8	0
IC1505	
1	0
2	0
3	0
Q1001	
E	0
C	132.4
B	0.3
Q1051	
E	12.2
C	15.0
B	12.8
Q1002	
E	0
C	0.3
B	0.6
Q1052	
E	0
C	12.8
B	0.7
Q1053	
E	5.1
C	5.2
B	5.9
Q1054	
E	5.1
C	5.2
B	5.9
Q1070	
E	12.2
C	11.9
B	11.6
Q1071	
E	6.4
C	-6.4
B	-5.7
Q1501	
E	0
C	12.2
B	0
Q1502	
E	0
C	0.5
B	0
Q1503	
E	0
C	1.0
B	0.5
Q1504	
E	10.7
C	13.2
B	0
Q1505	
E	0
C	0
B	0

AUDIO C.B.A.

MODE / PIN NO.	STOP
IC4201	
1	2.6
2	2.5
3	2.5
4	2.5
5	2.5
6	5.1
7	2.6
8	1.6
9	0
10	2.6
11	2.6
12	2.6
13	2.3
14	0
15	0
16	0
17	0
18	0
19	0
20	0
21	0
22	0
23	0
24	0
25	2.6
26	2.6
27	2.6
28	0
29	1.6
30	0
31	0
32	0
33	0
34	0
35	2.5
36	0
37	2.5
38	2.6
39	12.2
40	0
41	6.1
42	0
43	0
44	0
45	6.1
46	6.1
47	0
48	0
IC4351	
1	0
2	0
3	0
4	0
5	6.1
6	0
7	0
8	0
9	10.5
10	12.2
11	10.4
12	4.2
13	5.0
14	5.0
15	0
16	12.2
IC4352	
1	0
2	0
3	0
4	0
5	6.1
6	6.1
7	6.1
8	12.2
IC9001	
1	3.8
2	4.1
3	2.9
4	9.1
5	1.4
6	0
7	3.4
8	4.5
9	1.3
10	3.5
11	4.6
12	4.6
13	4.2
14	4.2
15	4.0
16	4.2
17	0
18	0.7
19	4.2
20	4.1
21	1.8
22	4.2
23	4.2
24	4.2
25	4.2
26	1.8
27	4.2
28	4.1
29	4.2
30	4.1
IC9201	
1	2.9
2	3.6
3	5.1
4	4.4
5	0
6	5.1
7	4.4
8	3.0
9	3.1
Q4351	
E	12.8
C	15.0
B	12.2
Q4352	
E	0
C	12.2
B	6.1
Q4353	
E	0
C	12.2
B	0
Q4354	
E	12.2
C	12.2
B	0
Q4355	
E	0
C	0
B	3.7
Q9001	
E	0.6
C	0
B	1.2
Q9002	
E	0
C	0
B	0.4
TP4201	0
TP4202	0
TP4205	0
TP4206	0
TP4207	0
TP4208	0
TP9001	0
TP9002	0
TP9003	0
TP9201	0.6

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

DVD DECODER C.B.A.

MODE / PIN NO.	STOP
IC8000	
1	3.6
2	1.5
3	1.3
4	1.2
5	1.4
6	1.2
7	1.4
8	0
9	3.6
10	1.9
11	1.3
12	0.3
13	0.2
14	1.2
15	1.7
16	1.7
17	0
18	3.6
19	1.0
20	0.2
21	1.2
22	0
23	0
24	3.6
25	0.1
26	0
27	3.6
28	2.8
29	2.6
30	2.7
31	0.1
32	0.1
33	1.9
34	0
35	3.6
36	0.4
37	0.4
38	0.4
39	0.4
40	0.4
41	0.4
42	0.4
43	0
44	3.6
45	0.4
46	0.4
47	0.4
48	0.3
49	0.5
50	---
51	3.6
52	0
53	0.5
54	0.5

MODE / PIN NO.	STOP
55	0.5
56	0.5
57	0.5
58	0.5
59	3.6
60	0
61	0.5
62	0.5
63	0.5
64	0.5
65	0.4
66	0.4
67	0
68	3.6
69	0.5
70	0.5
71	0.5
72	0.5
73	0.5
74	0.5
75	3.6
76	0
77	0.4
78	0.4
79	0.4
80	0.4
81	0.4
82	0.4
83	3.6
84	0
85	0.4
86	0.4
87	0.4
88	0.4
89	0.4
90	0.4
91	0
92	3.6
93	0.3
94	0.3
95	0.3
96	0.3
97	0.4
98	0
99	3.6
100	0.4
101	0.4
102	0.4
103	0
104	3.6
105	0.4
106	0.4
107	0.4
108	0.4
109	0.4

MODE / PIN NO.	STOP
110	0.4
111	3.6
112	0
113	0.4
114	0.3
115	0.3
116	0.5
117	0.4
118	0.3
119	0.3
120	0
121	3.6
122	0.4
123	0.4
124	0.4
125	0.4
126	0.4
127	0.4
128	0.4
129	0
130	3.6
131	0.4
132	0.8
133	0.4
134	0.4
135	0.4
136	0.4
137	0.4
138	0
139	3.6
140	0.4
141	0.4
142	0.3
143	0.3
144	0.2
145	0.3
146	0.5
147	0
148	3.6
149	0.4
150	0.4
151	0.4
152	0.8
153	0.3
154	0.4
155	0.4
156	0
157	3.6
158	0.4
159	5.0
160	0.4
161	0.4
162	0.4
163	0
164	3.6

MODE / PIN NO.	STOP
165	0.4
166	1.2
167	0.4
168	1.1
169	0.4
170	0.3
171	0
172	3.6
173	---
174	0.3
175	0.3
176	0
177	0
178	0.4
179	0.4
180	0.4
181	0.4
182	0.4
183	3.6
184	0
185	0.4
186	0.4
187	0.4
188	0.4
189	0.4
190	0.4
191	0.4
192	0
193	3.6
194	0.4
195	0.4
196	0.4
197	0.4
198	0.3
199	---
200	0
201	3.6
202	---
203	---
204	0.3
205	0.3
206	0.4
207	0.4
208	0
IC8001	
1	0
2	0
3	0
4	0
5	0.4
6	0.4
7	0
8	5.0
IC8002	
1	0

MODE / PIN NO.	STOP
2	0.4
3	0.4
4	0.4
5	0.3
6	0.3
7	0.4
8	0.4
9	0.3
10	0
11	0.3
12	0.3
13	0.4
14	0.4
15	0.3
16	0.3
17	0.4
18	0.4
19	---
20	5.0
IC8003	
1	0
2	3.6
3	0.5
4	0.5
5	0
IC8100	
1	3.6
2	0.7
3	3.6
4	0.6
5	0.9
6	0
7	1.0
8	1.2
9	3.6
10	0.9
11	0.9
12	0
13	1.2
14	3.6
15	0
16	3.5
17	3.5
18	3.5
19	0
20	0.1
21	0
22	0.1
23	1.3
24	1.2
25	1.0
26	1.9
27	3.6
28	0
29	0.1

MODE / PIN NO.	STOP
30	1.6
31	1.5
32	1.0
33	1.0
34	0.2
35	3.2
36	---
37	3.6
38	1.5
39	0
40	---
41	0
42	0.8
43	3.6
44	0.8
45	0.9
46	0
47	0.5
48	0.5
49	3.6
50	0.8
51	0.9
52	0
53	1.3
54	0
IC8200	
1	0.4
2	0.3
3	0.3
4	0.3
5	0
6	0
7	0
8	0
9	0
10	0
11	0.4
12	0
13	0
14	0
15	0.3
16	0.3
17	0.4
18	0
19	0
20	0.4
21	0
22	0.1
23	0.4
24	0.4
25	0.2
26	0
27	0
28	0.4
29	0

MODE / PIN NO.	STOP
30	0.4
31	0
32	0.3
33	0.1
34	0
35	0
36	0.3
37	0.3
38	0.3
39	0.3
40	0.3
41	0.3
42	0.4
43	0
44	0.4
IC8201	
1	0
2	5.1
3	3.7
IC8301	
1	2.2
2	2.5
3	0.1
4	0.6
5	0.1
6	0.6
7	0.6
8	0.6
9	---
10	---
11	0.6
12	0.1
13	---
14	---
15	0.4
16	0.6
17	0.1
18	0.1
19	0.1
20	0
21	0
22	0
23	0
24	0.1
25	0.9
26	3.6
27	0
28	3.6
29	0.9
30	---
31	0.8
32	---
33	1.0
34	---
35	0.9

MODE / PIN NO.	STOP
36	---
37	3.6
38	0.9
39	---
40	0.2
41	---
42	0.9
43	---
44	0
45	0
46	0
47	0
48	0
IC8401	
1	6.1
2	6.1
3	6.1
4	0
5	6.1
6	6.1
7	6.1
8	12.2
IC8403	
1	0.4
2	0.4
3	5.0
4	---
5	---
6	0.3
7	0.3
8	0.3
9	0.3
10	0.3
11	0.1
12	0
13	5.0
14	0
15	0.3
16	0.4
17	0.4
18	0.4
19	---
20	---
21	5.0
22	0
23	0
24	0
IC8502	
1	0
2	0.3
3	0.5
4	0
5	0.3
6	0.5
7	0

MODE / PIN NO.	STOP
8	---
9	0
10	0
11	0.4
12	0.3
13	0
14	3.6
Q8000	
E	0.7
C	0.7
B	0.5
Q8003	
E	0
C	0
B	4.0
Q8200	
E	0.1
C	0
B	0.5
Q8201	
E	0.3
C	0
B	0.2
Q8202	
E	0.3
C	0
B	0.5
Q8204	
E	0
C	0
B	0.1
Q8205	
E	0.1
C	0
B	0.4
Q8206	
E	0
C	0
B	0
Q8207	
E	1.9
C	0
B	0.6
Q8208	
E	1.6
C	0
B	0.9
TP8000	0.4
TP8001	0.1
TP8002	3.6
TP8003	0.4
TP8004	0.4
TP8005	0.3

MODE / PIN NO.	STOP
TP8006	0.5
TP8007	0.1
TP8008	0.2
TP8009	0.3
TP8010	0.2
TP8011	0.2
TP8012	5.0
TP8013	0.7
TP8014	0
TP8015	0.4
TP8016	0
TP8017	0
TP8018	0.4
TP8019	4.4
TP8020	0.4
TP8021	0
TP8022	5.0
TP8023	0.1
TP8024	0
TP8025	0.2
TP8026	0.4
TP8027	0.1
TP8028	0
TP8029	0
TP8030	0.4
TP8031	0.3
TP8032	0.3
TP8033	0.3
TP8034	0.4
TP8035	0.4
TP8036	0.4
TP8037	0.1
TP8038	0
TP8039	0.1
TP8040	0.4
TP8041	0.4
TP8042	0.4
TP8043	0
TP8044	0.4
TP8045	0
TP8046	0.1
TP8047	0
TP8048	0
TP8049	0
TP8051	5.0
TP8052	0.4
TP8053	0.1
TP8054	0.1
TP8055	0.3
TP8056	0.1
TP8057	0.1
TP8058	0.1
TP8059	0.1
TP8060	0.1
TP8061	0.1

MODE / PIN NO.	STOP
TP8062	0.4
TP8063	0.4
TP8065	0.1
TP8068	0.5
TP8069	0
TP8070	0.1
TP8071	0.1
TP8072	0.1
TP8100	3.6
TP8200	0.6
TP8201	0
TP8202	0.5
TP8203	0
TP8204	0.1
TP8205	0.4
TP8206	0.1
TP8207	0.1
TP8208	0.1
TP8209	0
TP8210	0.4
TP8211	0.4
TP8212	0.4
TP8213	0.4
TP8214	0.1
TP8215	0.1
TP8216	0.1
TP8300	0
TP8301	3.6
TP8302	0.4
TP8303	0.3
TP8304	0.4
TP8305	0.4
TP8306	0.4
TP8307	0.4
TP8308	0.4
TP8309	0.4
TP8310	0.4
TP8311	0.1
TP8312	0.3
TP8313	0.3
TP8315	0.1
TP8316	0
TP8317	0
TP8318	0.1
TP8319	0
TP8320	0
TP8321	0.5
TP8322	0
TP8323	0.5
TP8324	0.5
TP8325	0.1
TP8326	0
TP8327	0.1
TP8328	0
TP8329	0.4

MODE / PIN NO.	STOP
TP8330	0.1
TP8331	0.1
TP8332	0
TP8334	0
TP8335	0
TP8398	0.5
TP8399	0.5
TP8400	0.1
TP8401	0.1
TP8405	0
TP8407	0
TP8408	0.1
TP8415	0.3
TP8416	0.2
TP8417	0
TP8418	0
TP8419	0
TP8420	0
TP8421	0.4
TP8422	0.4
TP8423	0
TP8424	0
TP8501	0.3
TP8502	0.1
TP8503	0.1
TP8504	0.4
TP8505	0.1
TP8506	0.3

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

CRT C.B.A.

MODE / PIN NO.	STOP
Q5051	
E	2.1
C	9.1
B	2.8
Q5052	
E	-2.2
C	2.5
B	-1.6
Q5053	
E	2.6
C	9.1
B	3.2
Q5054	
E	2.5
C	-3.0
B	1.9
Q5057	
E	3.2
C	-3.0
B	2.5
Q5058	
E	1.9
C	9.1
B	2.5
Q5061	
E	-3.0
C	0
B	-2.8
Q5062	
E	2.8
C	9.1
B	3.4
TP46	0
TP47	-3.0
TP48	0
TP49	0
TP50	162.8

OPERATION C.B.A.

MODE / PIN NO.	STOP
IC4701	
1	0
2	0
3	0
4	6.4
5	0
6	0
7	0
8	5.0
TP4591	0
TP4592	0
TP4701	0
TP4702	0
TP4710	0
TP4711	0.3

Hi-Fi AUDIO/VIDEO HEAD AMP C.B.A.

MODE / PIN NO.	STOP
IC3501	
1	0
2	0
3	0.5
4	0
5	0
6	0
7	0.5
8	0
9	0
10	0.5
11	0
12	0
13	0.1
14	0.1
15	---
16	2.4
17	2.4
18	0
19	---
20	---
21	---
22	---
23	---
24	---
25	0.2
26	5.1
27	0
28	0
29	0
30	2.5
31	5.2
32	4.9
33	0.2
34	0.1
35	11.9
36	0.1
IC4401	
1	0
2	4.0
3	0.6
4	0
5	4.0
6	4.0
7	1.0
8	0.7
9	2.6
10	5.1
11	0
12	0
13	3.9
14	3.9
15	0.1
16	13.0

1. **Important safety notice**
   Components identified by the sign ⚠ have special characteristics important for safety. When replacing any of these components. Use only the specified parts.

2. Do not use the part number shown on this drawing for ordering.
   The correct part number and part value is shown in the parts list, and may be slightly different or amended since this drawing was prepared.

3. Use only original replacement parts:
   To maintain original function and reliability of repaired units, use only original replacement parts which are listed with their part numbers in the parts list section of the service manual.

4. Parts different in shape or size may be used.
   However, only interchangeable parts will be supplied as service replacement parts.

5. Test point information
   - ◐ :Test point with a jumper wire across a hole in P.C.B.
   - ▭→ :Test point with a component lead on the foil side.
   - ▨ :Test point with no test pin.
   - ● :Test point with a test pin.

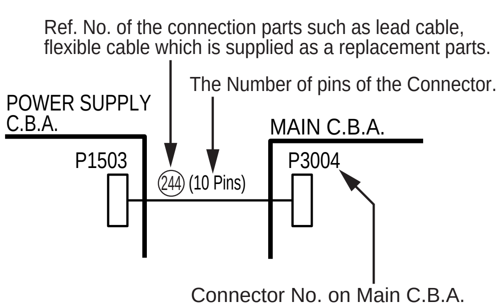
Schematic Diagram Notes

1. Indication for Zener Voltage of Zener Diodes
   The Zener Voltage of Zener Diodes are indicated as such on Schematic Diagrams.

   Example:
   (6.2V)......Zener Voltage

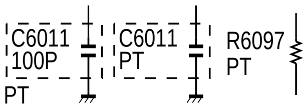
2. How to identify Connectors
   Each connector is labeled with a Connector No. and Pin No. Indicating what it is connected to,
   in other words, its counter part.
   Use the interconnection schematic diagram to find the connection between associated connectors.

   Example:
   The connections between C.B.A.s are shown below.



3. Parts marked "PT" are not used in any models included in this service model.

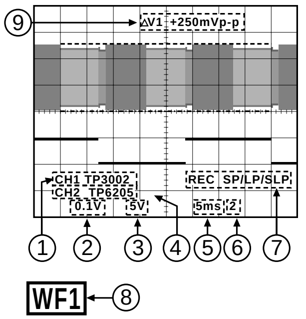
   Example:



4. Jumper wires are used for WA10, WA5 etc and these are not supplied as replacement parts.

Signal Waveform Note

How to read Signal Waveform



① Connecting Point
② Volts/Div
③ Volts/Div
④ Connecting Point
⑤ Time/Div
⑥ Trigger Channel of the scope (1:CH1,2:CH2)
⑦ Operation Mode of VCR
⑧ Waveform Point on Schematic
⑨ ΔV1:Peak to Peak

Voltage Chart Note

Voltage Measurement
a. Color bar signal in SP mode.
b. ---:Unmeasurable or not necessary to measure.

Circuit Board Layout Note

Circuit Board Layout shows components installed for various models.
For proper parts content for the model you are servicing, please refer to the schematic diagram and parts list.

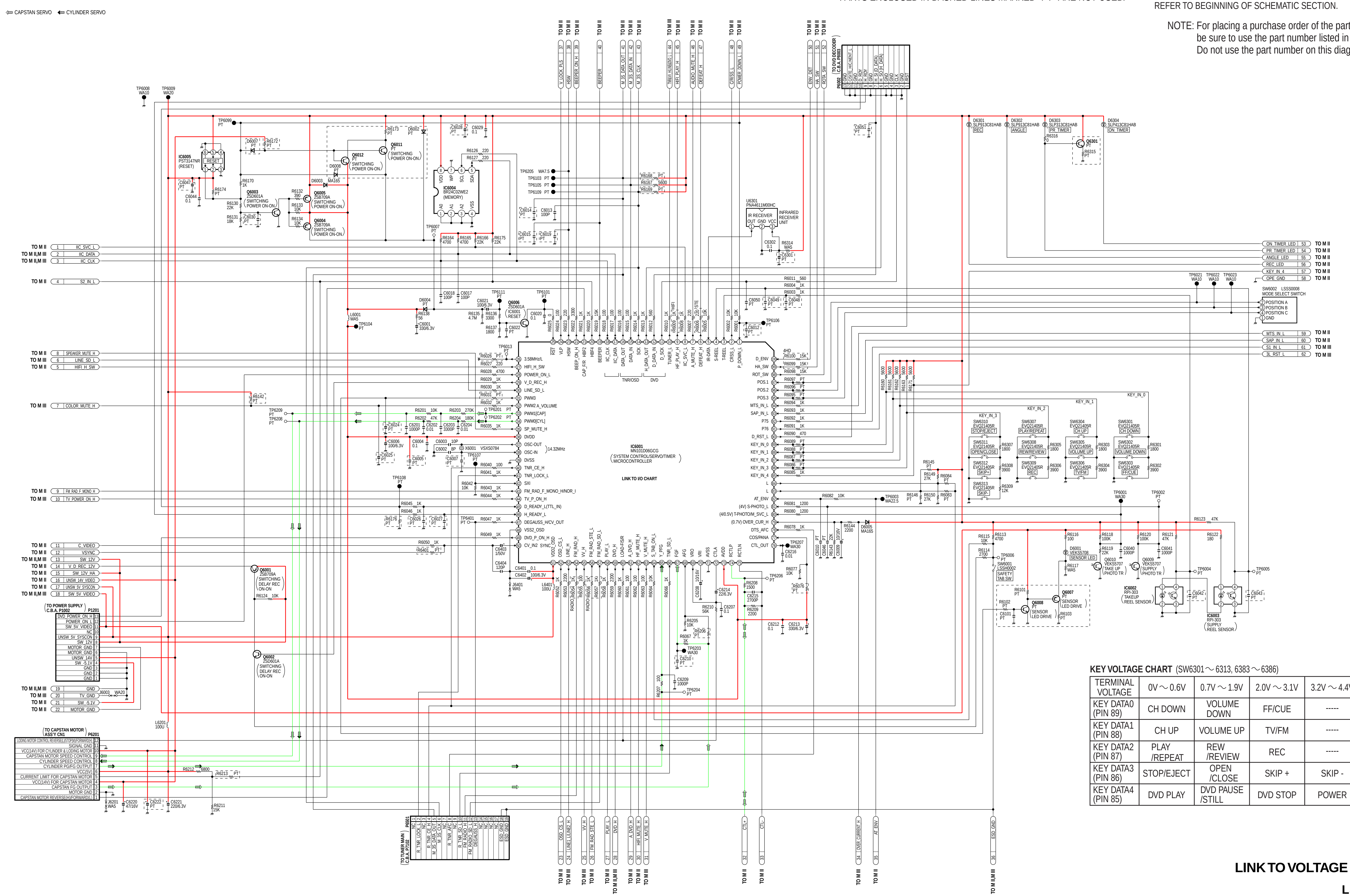
NOTE:
Circuit Board Layout includes components which are not used.

MAIN I SCHEMATIC DIAGRAM

NOTE:
PARTS ENCLOSED IN DASHED LINES MARKED "PT" ARE NOT USED.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE: For placing a purchase order of the parts, be sure to use the part number listed in the parts list. Do not use the part number on this diagram.



KEY VOLTAGE CHART (SW6301～6313, 6383～6386)

TERMINAL VOLTAGE	0V～0.6V	0.7V～1.9V	2.0V～3.1V	3.2V～4.4V
KEY DATA0 (PIN 89)	CH DOWN	VOLUME DOWN	FF/CUE	-----
KEY DATA1 (PIN 88)	CH UP	VOLUME UP	TV/FM	-----
KEY DATA2 (PIN 87)	PLAY /REPEAT	REW /REVIEW	REC	-----
KEY DATA3 (PIN 86)	STOP/EJECT	OPEN /CLOSE	SKIP +	SKIP -
KEY DATA4 (PIN 85)	DVD PLAY	DVD PAUSE /STILL	DVD STOP	POWER

LINK TO VOLTAGE CHART

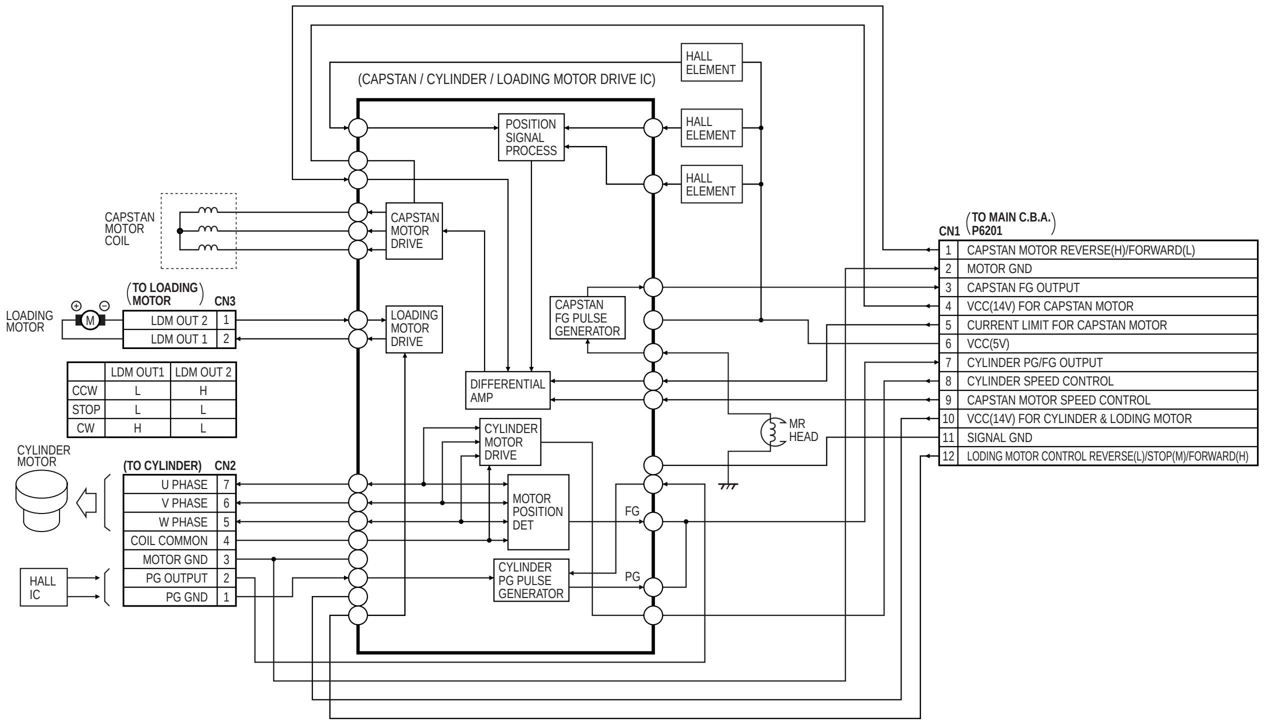
I/O CHART OF IC6001

Pin No.	I/O	Signal Name	Description
1	I	P_DOWN_L	POWER DOWN(L)
2	O	CRSS_L	CUE/REV/SS(L)
3	I	T-REEL	TAKEUP REEL PULSE
4	I	S-REEL	SUPPLY REEL PULSE
5	I	IR-DATA	IR-DATA
6	O	DEFEAT_H	AUDIO DEFEAT(H)
7	O	A_MUTE_H	AUDIO MUTE(H)
8	I	IIC_SVC_L	I2C SERVICE MODE(L)
9	I	HF_PLAY_H	Hi-Fi AUDIO PB(H)
10	O	TUNER_L	???
11	I	D_SCK	DVD SERIAL CLOCK
12	I	D_DATA_IN	DVD SERIAL DATA 0
13	O	H_DATA_OUT	DVD SERIAL DATA 1
14	O	SCK	SERIAL CLOCK
15	I	DATA_IN	SERIAL DATA 0
16	O	DATA_OUT	SERIAL DATA 1
17	I/O	IIC_DATA	I2C SERIAL DATA
18	O	IIC_CLK	I2C SERIAL CLOCK
19	I/O	BEEPER	BEEPER
20	I	S2_IN_L	S-JACK SIGNAL(L)
21	O	CAP_F/R	CAPSTAN MOTOR REVERSE(H)/FORWARD(L)
22	O	BEEPER_ON_H	BEEPER ON(H)
23	O	HSW	HEAD SW
24	O	VLP	V-LOCK PULSE
25	I	RST	RESET(L)
26	O	3.58MHz/L	3.58MHz
27	O	HIFI_H_SW	Hi-Fi HEAD SW
28	O	POWER_ON_L	POWER ON(L)
29	O	V_D_REC_H	VIDEO DELAY REC(H)
30	I	LINE_SD_L	TV SIGNAL(L)
31	-	NC	(Not used)
32	O	A_VOLUME	AUDIO VOLUME
33	O	CAP	CAP ERROR
34	O	CYL	CYL ERROR
35	O	SP_MUTE_H	AUDIO AMP MUTE(H)
36	I	DVDD	VDD (+5V)
37	O	OSC_OUT	OSC 2
38	I	OSC_IN	OSC 1
39	-	DVSS	Ground
40	O	TNR_CE_H	TUNER CHIP ENABLE(H)
41	I	TNR_LOCK_L	TUNER LOCK SIGNAL(L)
42	-	SXI	SXI
43	I/O	FM_RAD_F_MONO_H/NOR_I	FM MONO(H)
44	O	TV_P_ON_H	TV POWER ON(H)
45	I	D_READY_L	DVD READY(L)
46	I	H_READY_L	HOST READY(L)
47	O	DEGAUSS_H/CV_OUT	DEGAUSS(H)
48	-	VSS2_OSD	Ground
49	O	DVD_P_ON_H	DVD POWER ON(H)
50	I	CV_IN2	VIDEO

Pin No.	I/O	Signal Name	Description
51	I	VDD2_OSD	VDD (+5V)
52	O	OSD_CS_L	OSD CS(L)
53	O	LINE_H	LINE 1 SIGNAL(L)/LINE 2 SINGAL(H)
54	O	FM_RAD_H	FM RADIO(H)/TV(L)
55	O	VV_H	VV(H)/EE(L)
56	I	FM_RAD_STE_L	FM RADIO STEREO(L)/MONO(H)
57	I	FM_RAD_SD_L	FM RADIO SIGNAL(L)
58	O	PLAY_L	PB(L)
59	O	DVD_H	DVD(H)
60	I/O	LOAD-F/S/R	LOADING MOTOR CONTROL REVERSE(L)/STOP(M)/FORWARD(H)
61	O	A_DVD_H	AUDIO DVD(H)
62	O	HF_MUTE_H	Hi-Fi AUDIO MUTE(H)
63	O	V_MUTE_H	VIDEO MUTE(H)
64	I	S_TAB_ON_L	SAFETY TAB ON(L)
65	I	Y_PFG	CYL PG/FG
66	I	TNR_SD_L	TUNER SIGNAL(L))
67	O	FGF	CAP FG
68	I	AFG	CAP FG
69	O	VRO	V-REF 1
70	I	VRI	V-REF 2
71	-	AVSS	Ground
72	I	CTLA	CTL AMP
73	-	AVDD	VDD (+5V)
74	I/O	RCTLP	CTL PULSE(+)
75	-	RCTLN	CTL PULSE(-)
76	O	CTL_OUT	PB CONTROL PULSE
77	-	COS/PANA	(Not used)
78	I	DTS_AFC	AFC
79	I	OVER_CUR_H	OVER CURRENT(H)
80	I	T-PHOTO/M_SVC_L	TAKEUP PHOTO TR(L)/SERVICE(L)
81	I	S-PHOTO_L	SUPPLY PHOTO TR(L)
82	I	AT_ENV	ENV-VOLTAGE
83	-	L	(Not used)
84	-	L	SWITCHING TERMINAL OPTION(IC7551/IC481/IC451)
85	I	KEY_IN_4	KEY DATA 4
86	I	KEY_IN_3	KEY DATA 3
87	I	KEY_IN_2	KEY DATA 2
88	I	KEY_IN_1	KEY DATA 1
89	I	KEY_IN_0	KEY DATA0
90	O	D_RST_L	DVD RESET(L)
91	O	3L_RST_L	IC5101 RESET(L)
92	O	S-JACK SIGNAL(L)	S-JACK SIGNAL(L)
93	I	SAP_IN_L	SAP SIGNAL(L)
94	I	MTS_IN_L	MTS SIGNAL(L)
95	I	POS.3	MODE SW POSITION C
96	I	POS.2	MODE SW POSITION B
97	I	POS.1	MODE SW POSITION A
98	O	ROT_SW	ROTARY SW
99	O	HA_SW	HEAD AMP SW
100	I	D-ENV	ENVELOPE DET

CAPSTAN MOTOR ASS'Y

NOTE:
CAPSTAN MOTOR ASS'Y (REF. NO. 46) IS SUPPLIED AS A UNIT ONLY.
HOWEVER, THE FLAT FLEXIBLE CABLE (REF. NO. 48) IS AVAILABLE SEPARATELY AS A REPLACEMENT PART.

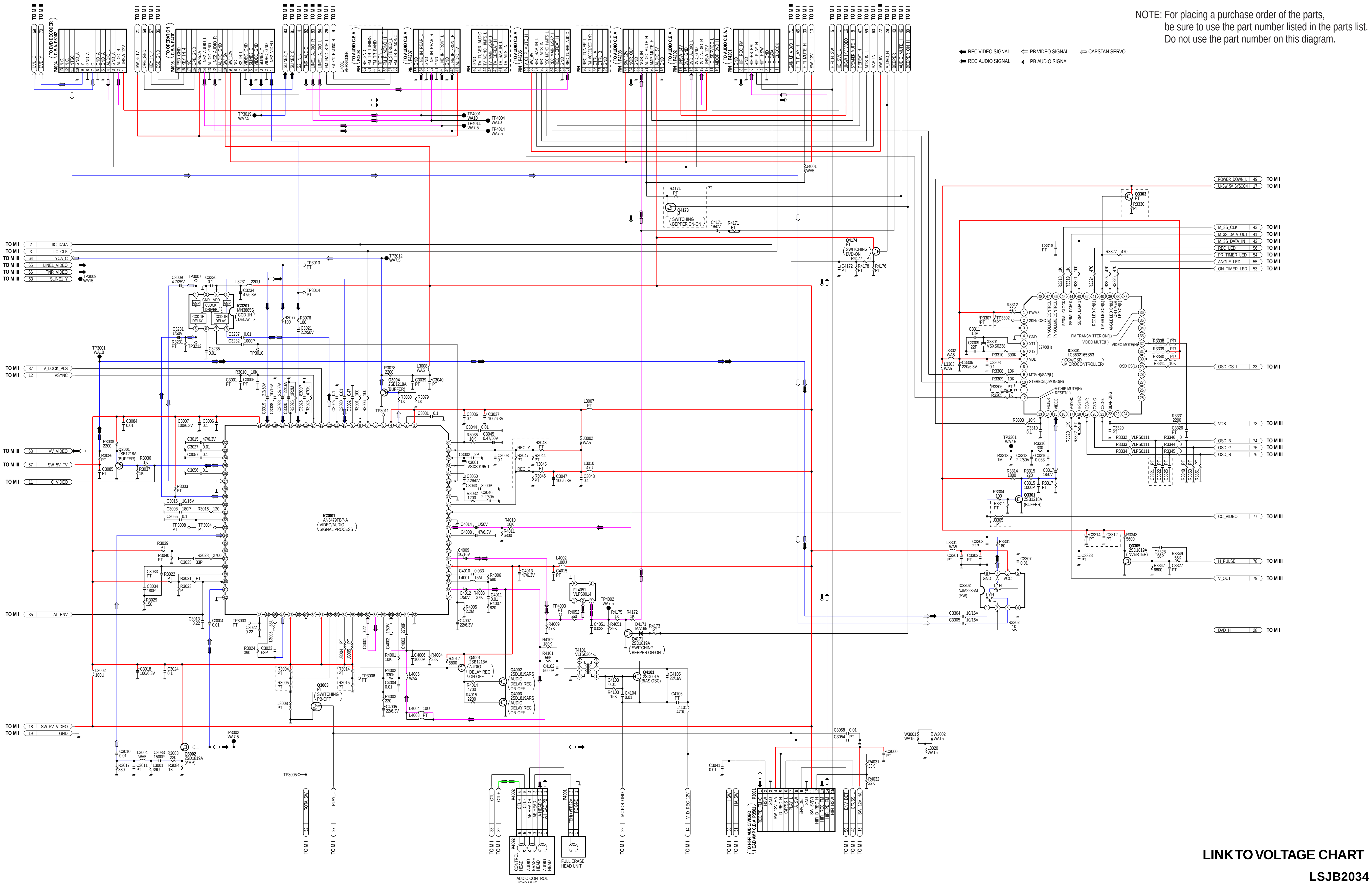


MAIN II SCHEMATIC DIAGRAM

NOTE:
PARTS ENCLOSED IN DASHED LINES MARKED "PT" ARE NOT USED.

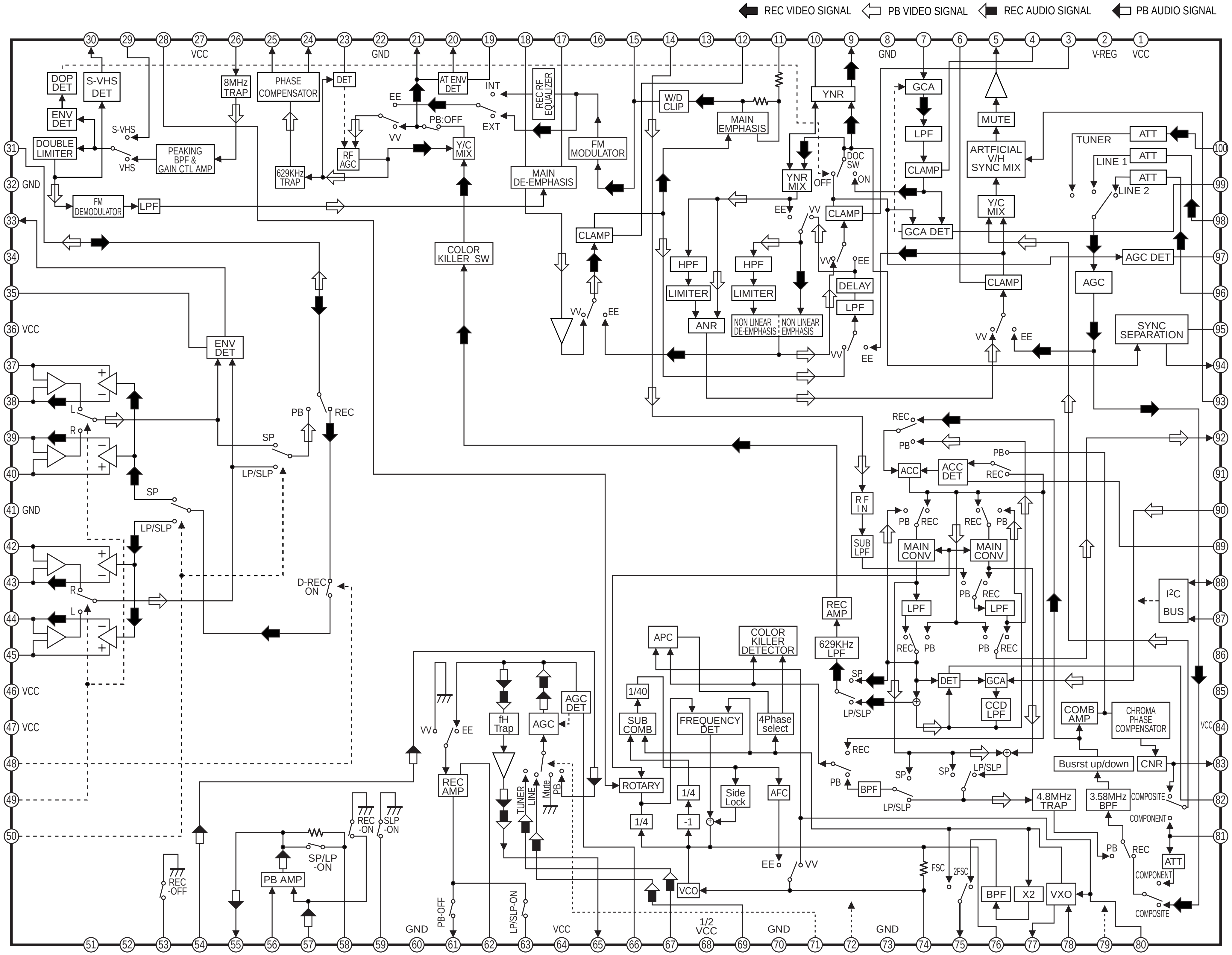
NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE: For placing a purchase order of the parts, be sure to use the part number listed in the parts list. Do not use the part number on this diagram.



LINK TO VOLTAGE CHART

IC3001 VIDEO/AUDIO SIGNAL PROCESS / HEAD AMP IC- DETAIL BLOCK DIAGRAM



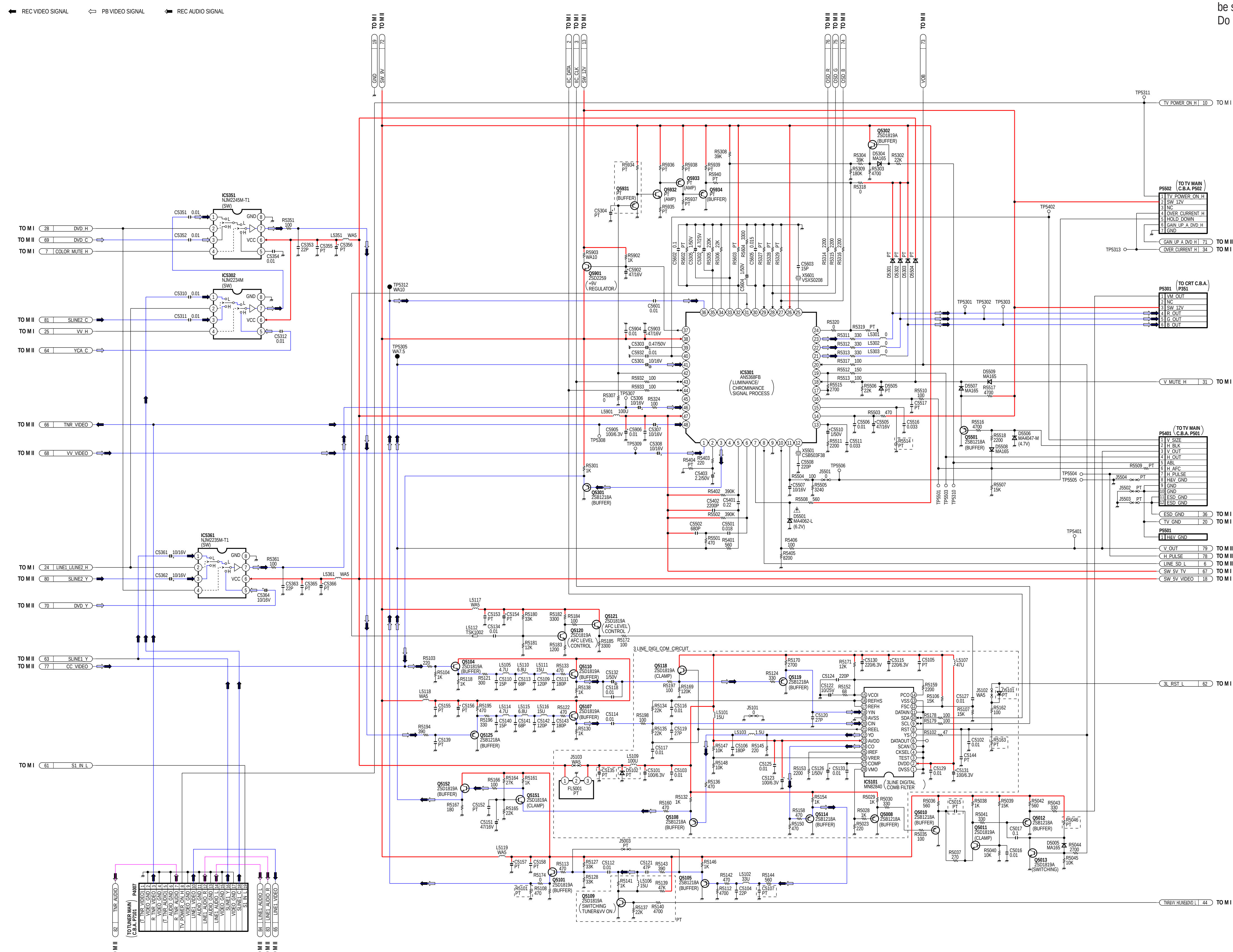
MAIN III SCHEMATIC DIAGRAM

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

NOTE:
PARTS ENCLOSED IN DASHED LINES MARKED "PT" ARE NOT USED.

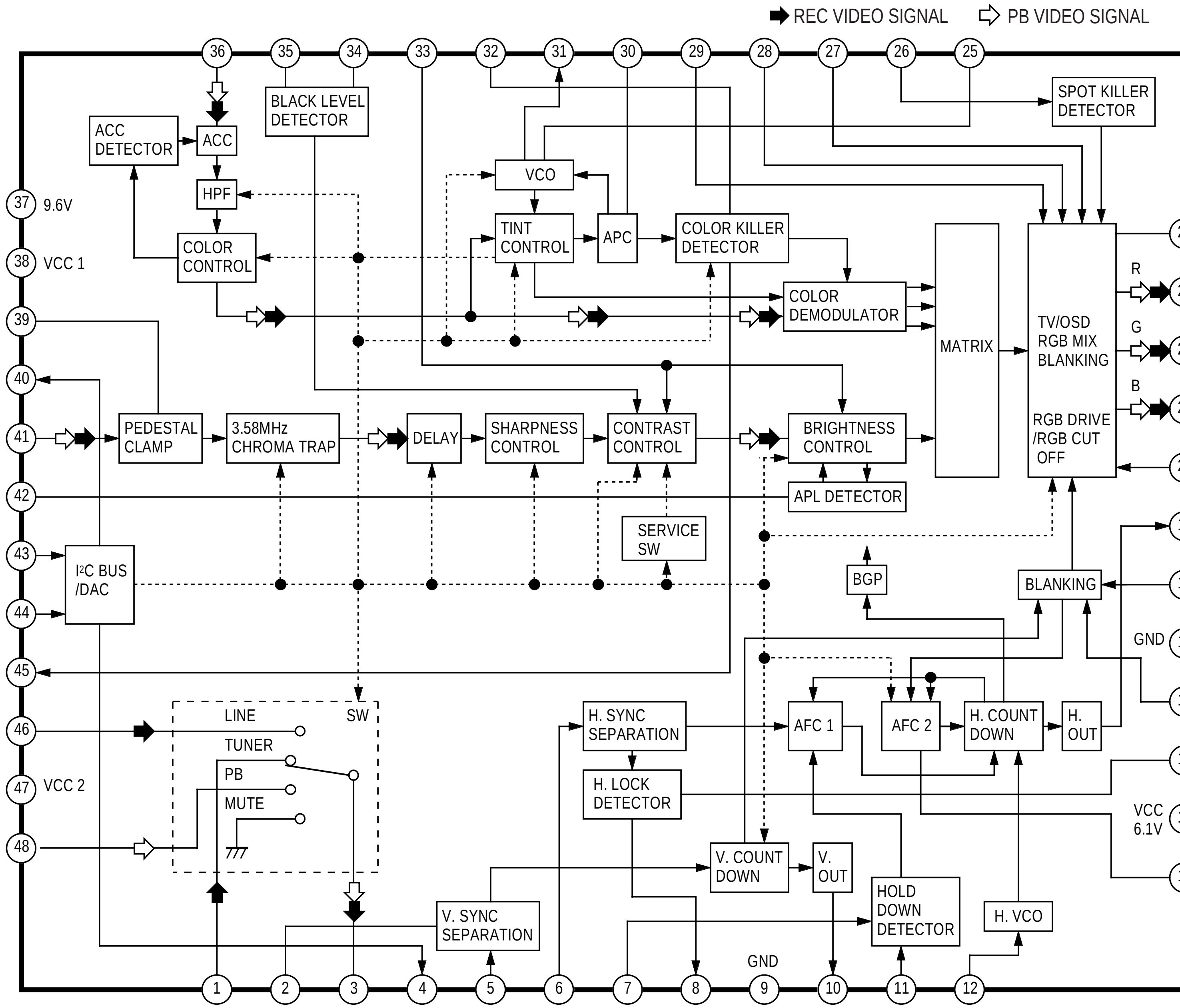
NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE: For placing a purchase order of the parts, be sure to use the part number listed in the parts list. Do not use the part number on this diagram.

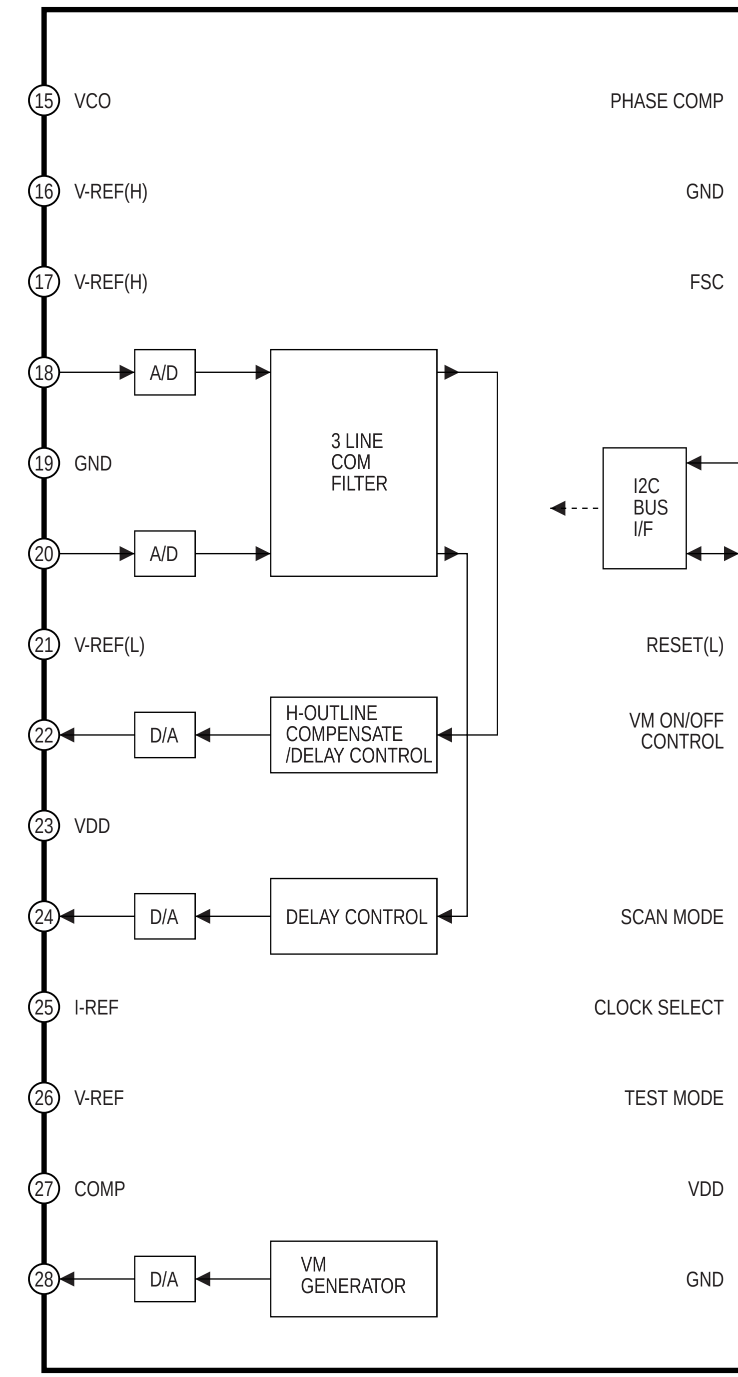


LINK TO VOLTAGE CHART

IC5301 LUMINANCE/CHROMINANCE PROCESS IC- DETAIL BLOCK DIAGRAM



IC5101 3LINE DEGI COM
IC- DETAIL BLOCK DIAGRAM



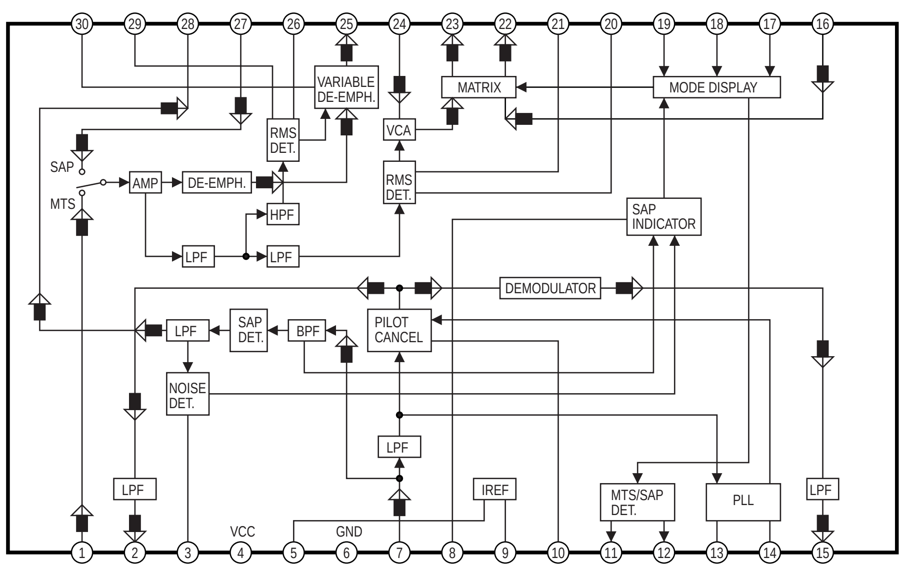
AUDIO I SCHEMATIC DIAGRAM

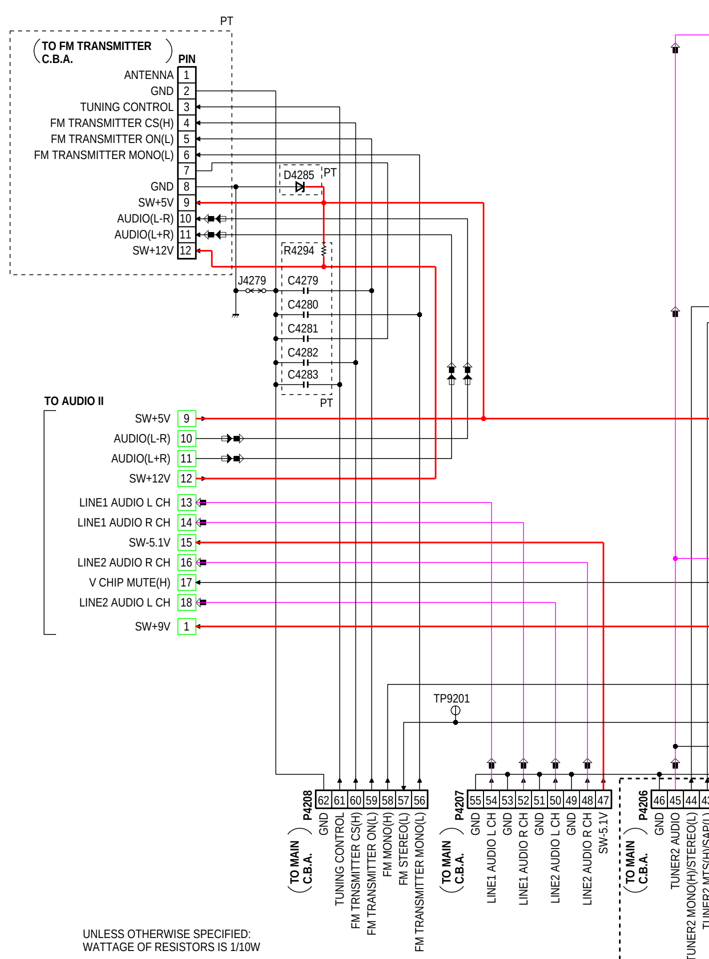
NOTE:
PARTS ENCLOSED IN DASHED LINES MARKED "PT" ARE NOT USED.

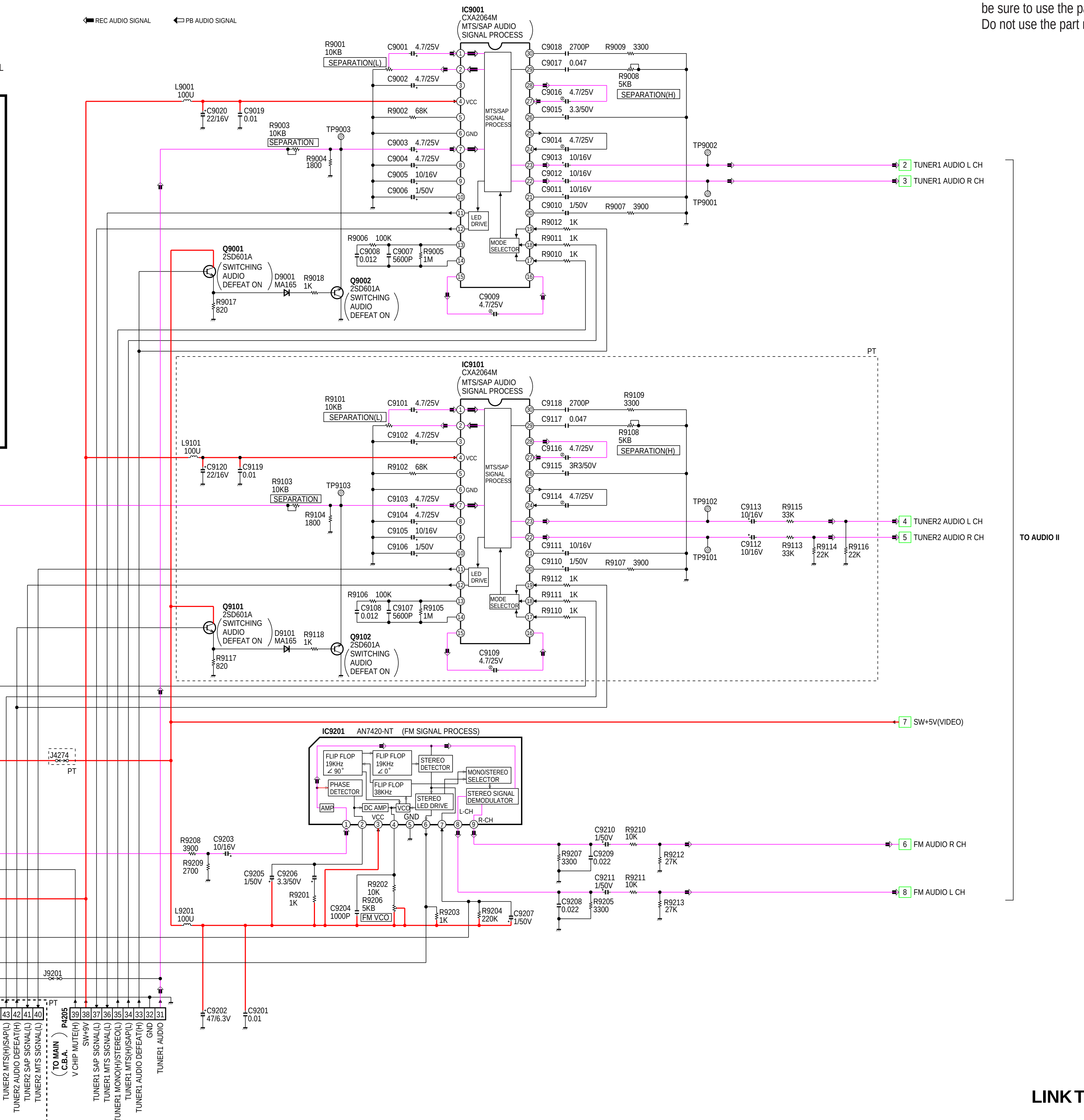
NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE: For placing a purchase order of the parts, be sure to use the part number listed in the parts list. Do not use the part number on this diagram.

IC9001 MTS/SAP AUDIO PROCESS
IC- DETAIL BLOCK DIAGRAM







UNLESS OTHERWISE SPECIFIED:
WATTAGE OF RESISTORS IS 1/10W

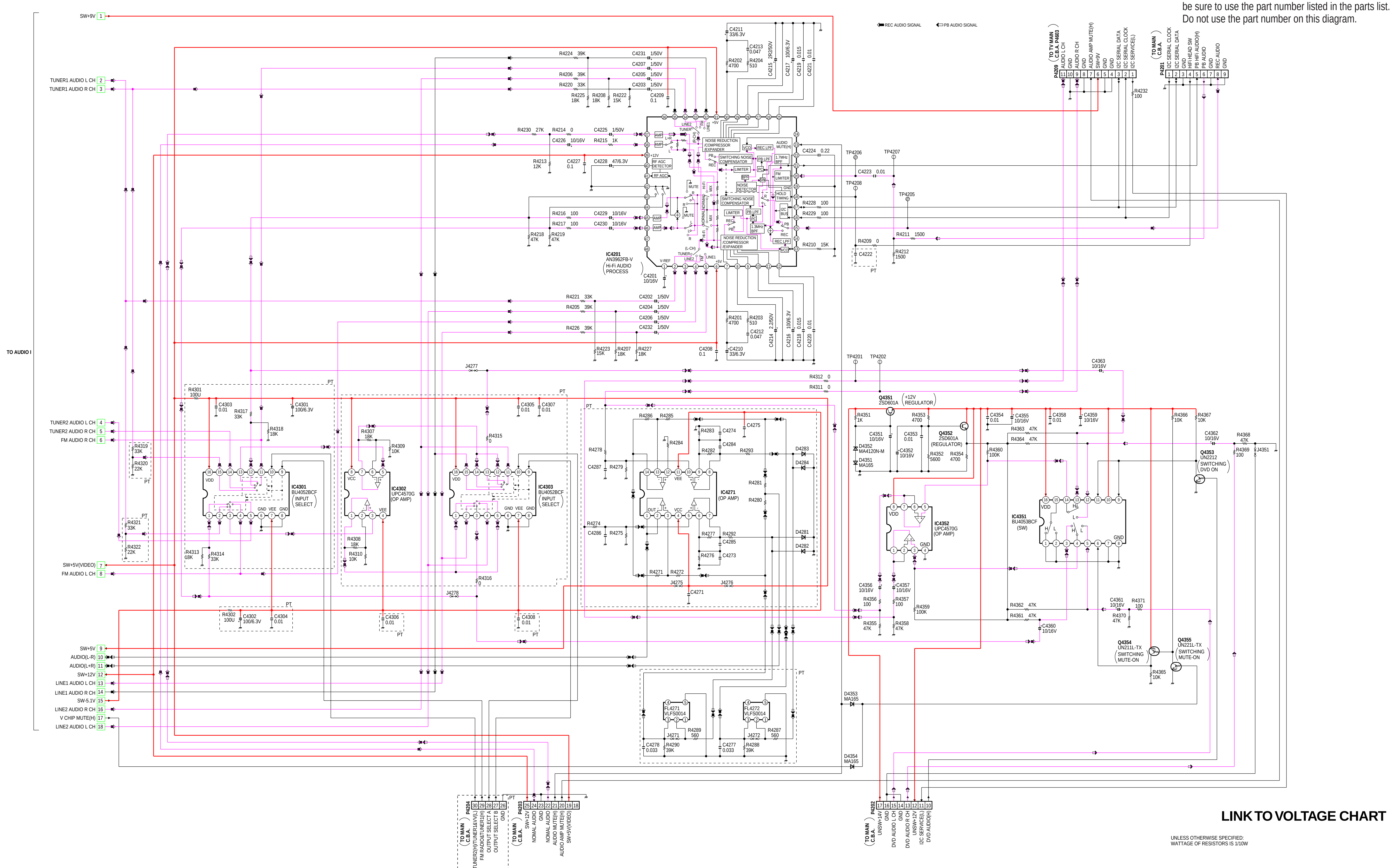
LINK TO VOLTAGE CHART

AUDIO II SCHEMATIC DIAGRAM

NOTE:
PARTS ENCLOSED IN DASHED LINES MARKED "PT" ARE NOT USED.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.



LINK TO VOLTAGE CHART

UNLESS OTHERWISE SPECIFIED:
WATTAGE OF RESISTORS IS 1/10W

VJBS4036
PV-DF2702/PV-DF2702-K
AUDIO II SCHEMATIC DIAGRAM

POWER SUPPLY SCHEMATIC DIAGRAM

NOTE:
PARTS ENCLOSED IN DASHED LINES MARKED "PT" ARE NOT USED.

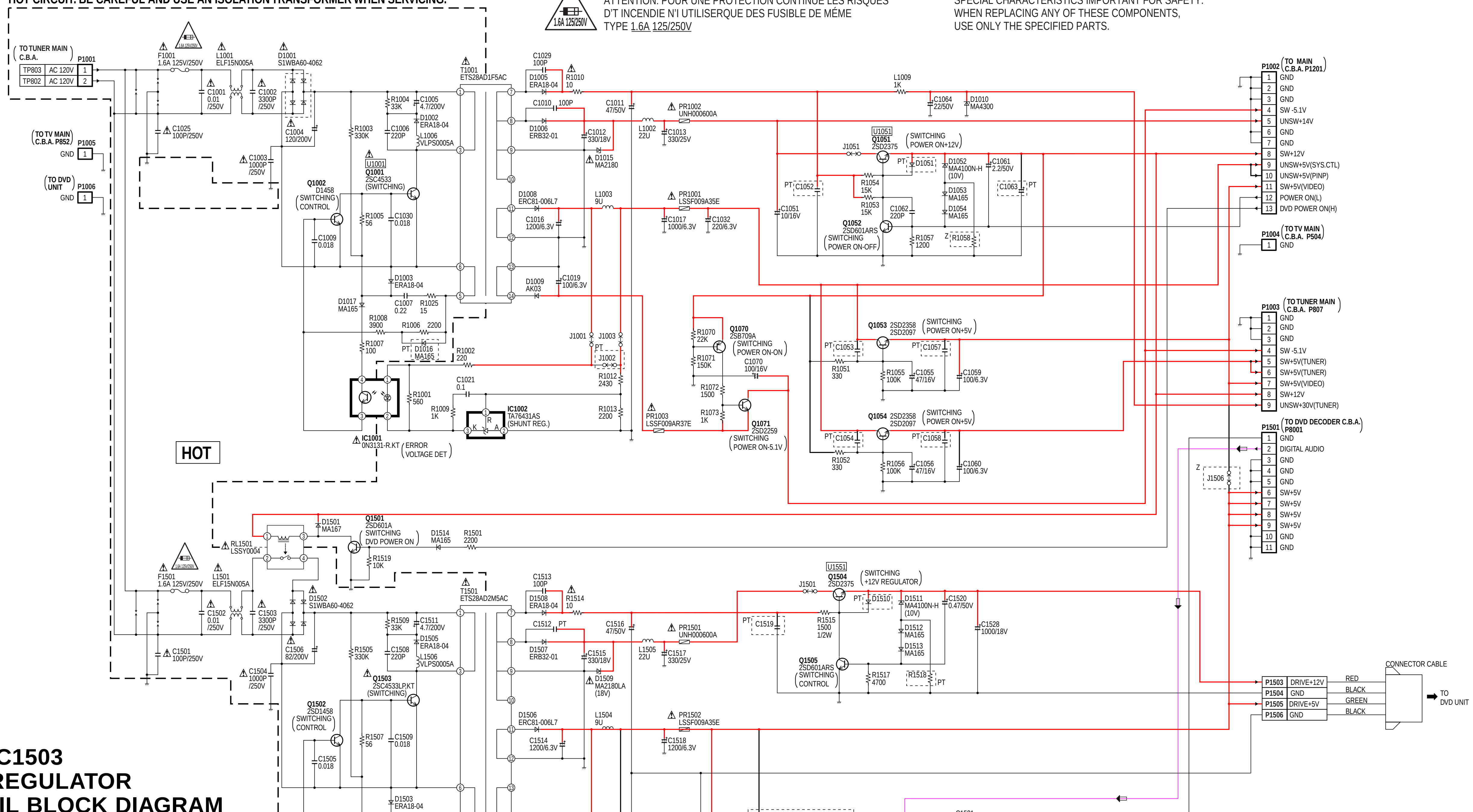
NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE: For placing a purchase order of the parts, be sure to use the part number listed in the parts list. Do not use the part number on this diagram.

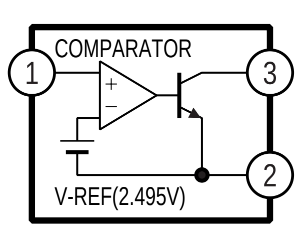
CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE 1.6A 125/250V FUSE.
ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES D'T INCENDIE N'I UTILISERQUE DES FUSIBLE DE MÉME TYPE 1.6A 125/250V

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

HOT CIRCUIT. BE CAREFUL AND USE AN ISOLATION TRANSFORMER WHEN SERVICING.



IC1002, IC1503
SHUNT REGULATOR
IC- DETAIL BLOCK DIAGRAM



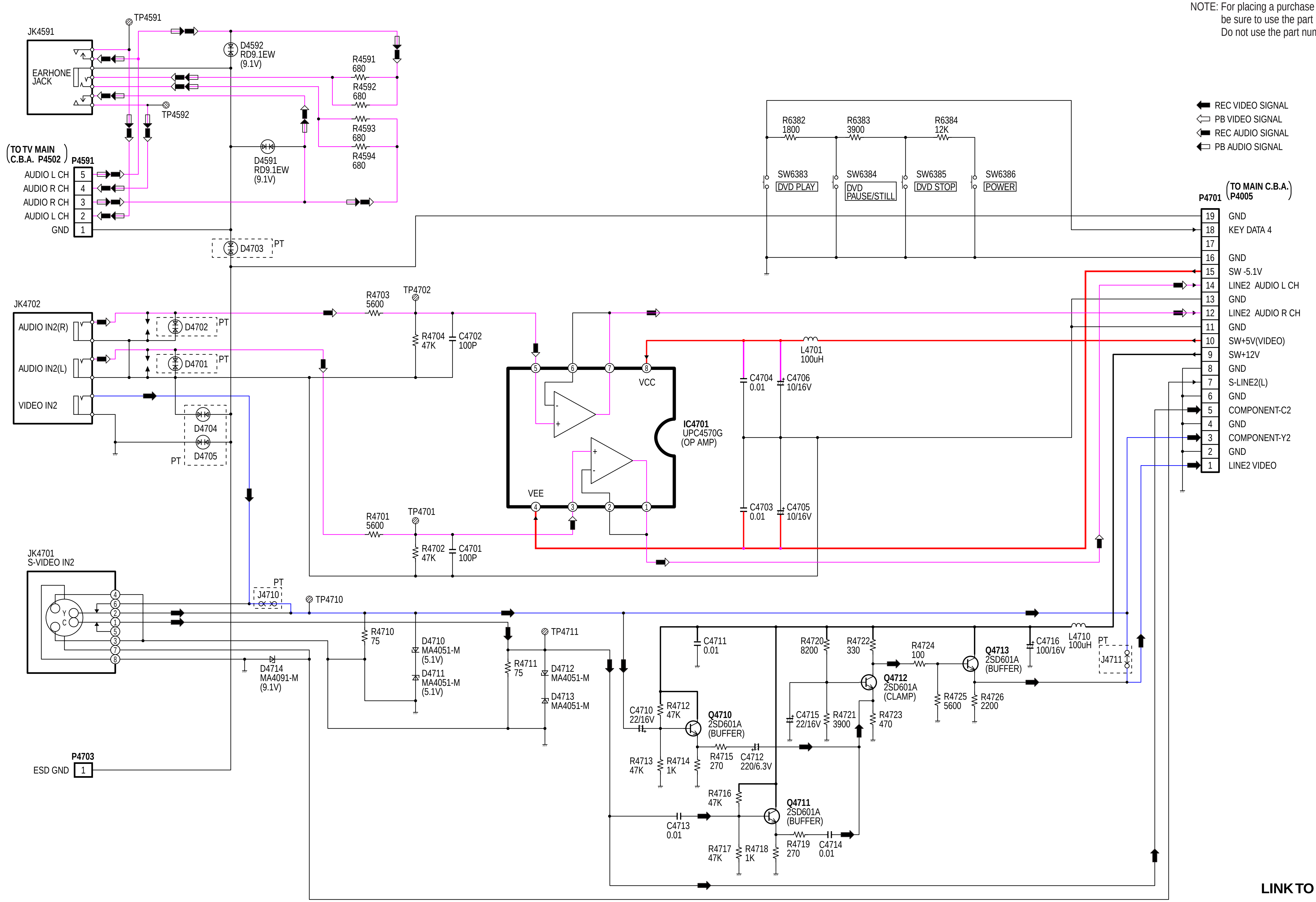
LINK TO VOLTAGE CHART

OPERATION SCHEMATIC DIAGRAM

NOTE:
PARTS ENCLOSED IN DASHED LINES MARKED "PT" ARE NOT USED.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE: For placing a purchase order of the parts, be sure to use the part number listed in the parts list. Do not use the part number on this diagram.



LINK TO VOLTAGE CHART

VJBS8060
PV-DF2702/PV-DF2702-K
OPERATION SCHEMATIC DIAGRAM

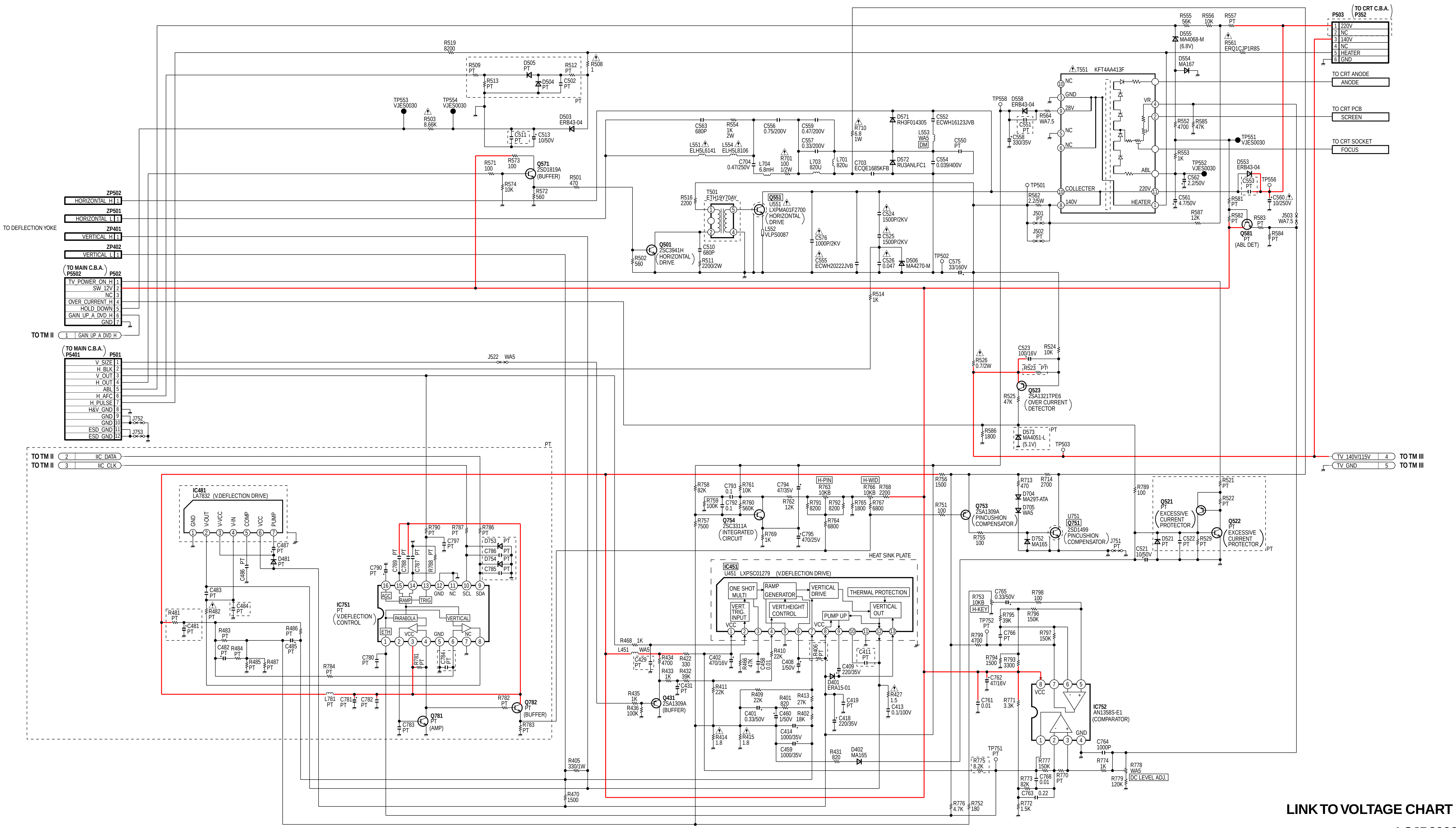
TV MAIN I SCHEMATIC DIAGRAM

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

NOTE:
PARTS ENCLOSED IN DASHED LINES MARKED "PT" ARE NOT USED.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE: For placing a purchase order of the parts, be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.



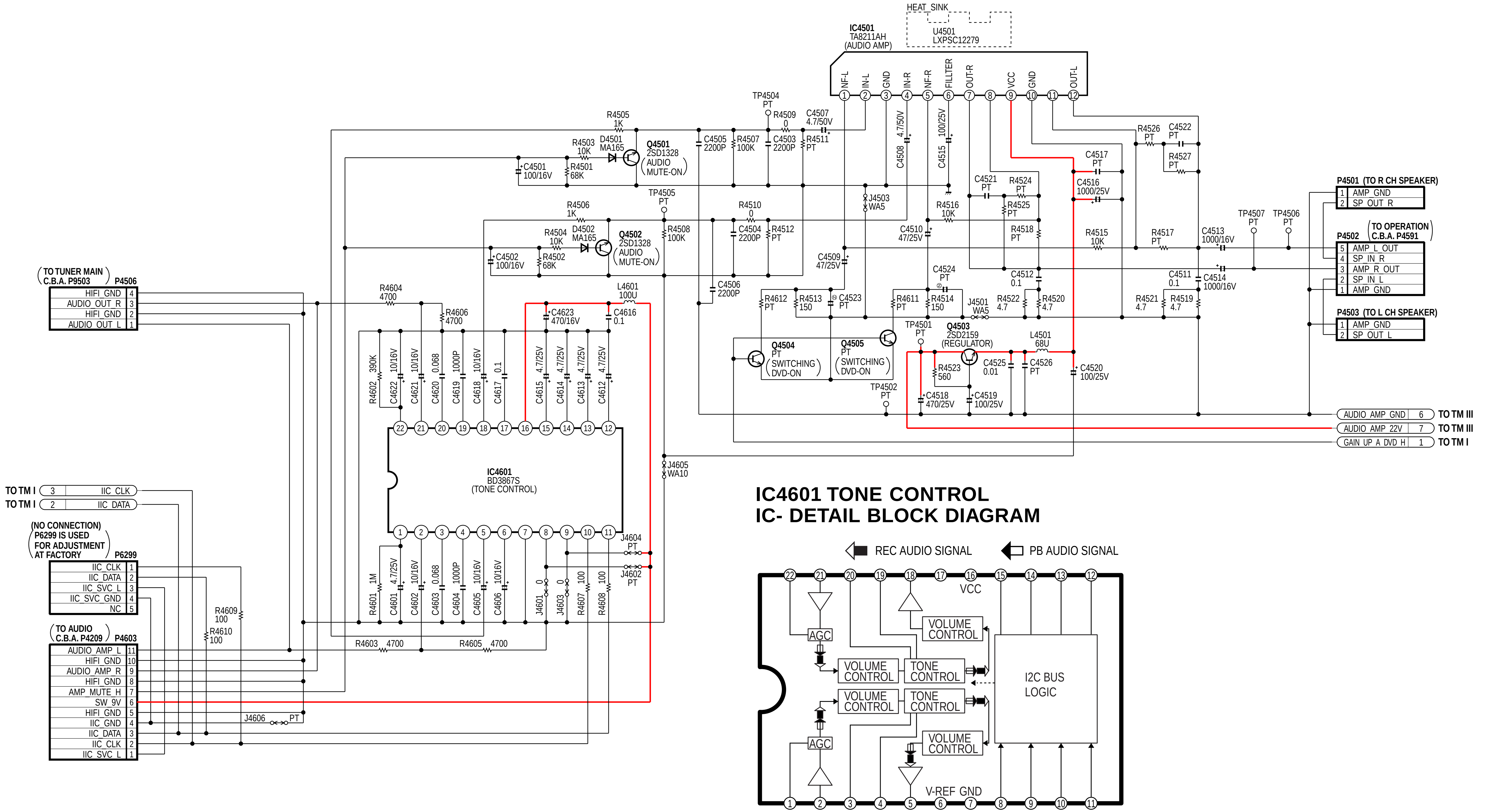
LINK TO VOLTAGE CHART

TV MAIN II SCHEMATIC DIAGRAM

NOTE:
PARTS ENCLOSED IN DASHED LINES MARKED "PT" ARE NOT USED.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE: For placing a purchase order of the parts, be sure to use the part number listed in the parts list. Do not use the part number on this diagram.



IC4601 TONE CONTROL
IC- DETAIL BLOCK DIAGRAM

LINK TO VOLTAGE CHART

TV MAIN III SCHEMATIC DIAGRAM

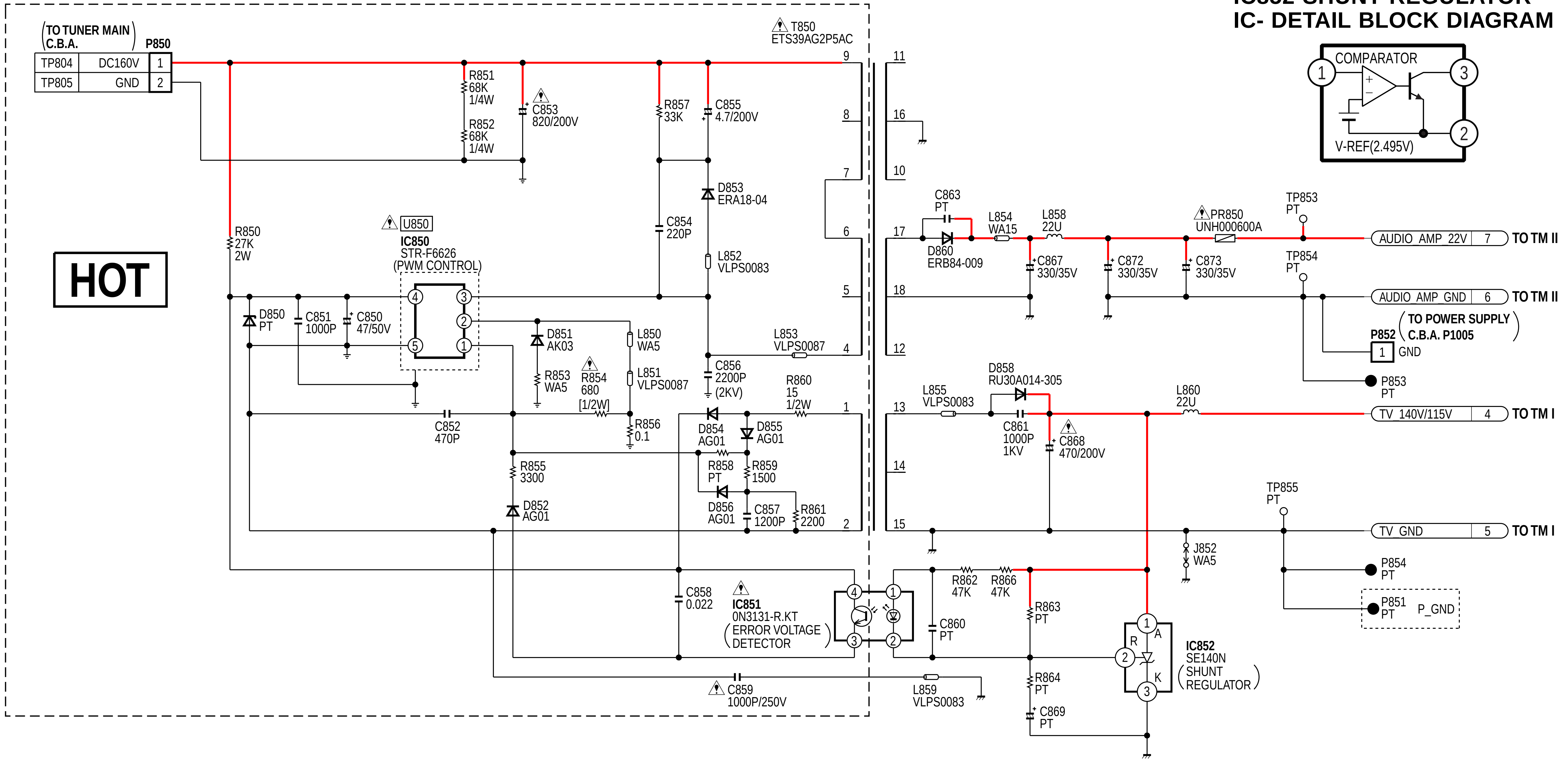
IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

NOTE:
PARTS ENCLOSED IN DASHED LINES MARKED "PT" ARE NOT USED.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE: For placing a purchase order of the parts, be sure to use the part number listed in the parts list. Do not use the part number on this diagram.

HOT CIRCUIT. BE CAREFUL AND USE AN ISOLATION TRANSFORMER WHEN SERVICING.



IC852 SHUNT REGULATOR
IC- DETAIL BLOCK DIAGRAM

LINK TO VOLTAGE CHART

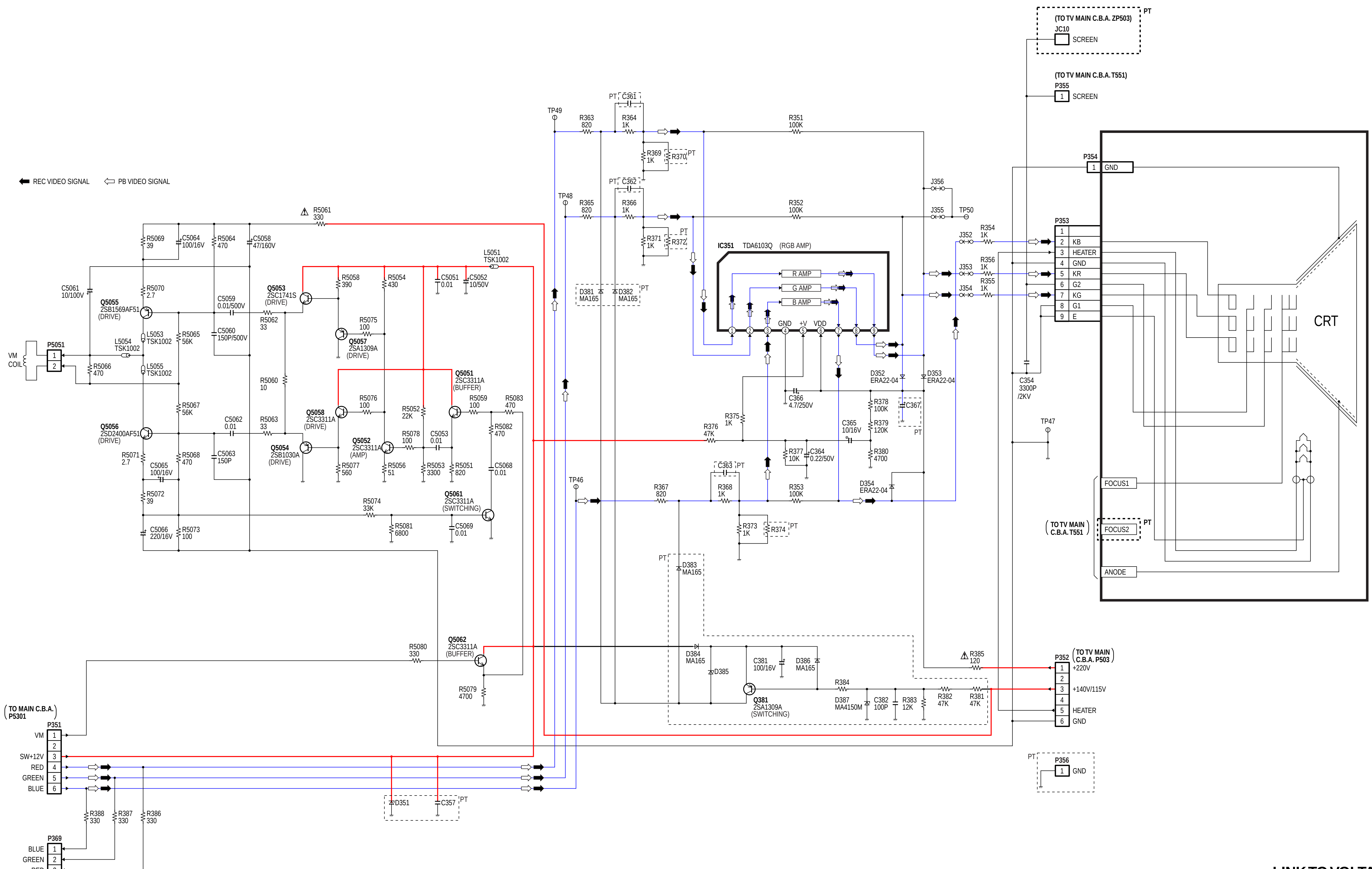
CRT SCHEMATIC DIAGRAM

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE
SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS,
USE ONLY THE SPECIFIED PARTS.

NOTE:
PARTS ENCLOSED IN DASHED LINES MARKED "PT" ARE NOT USED.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.



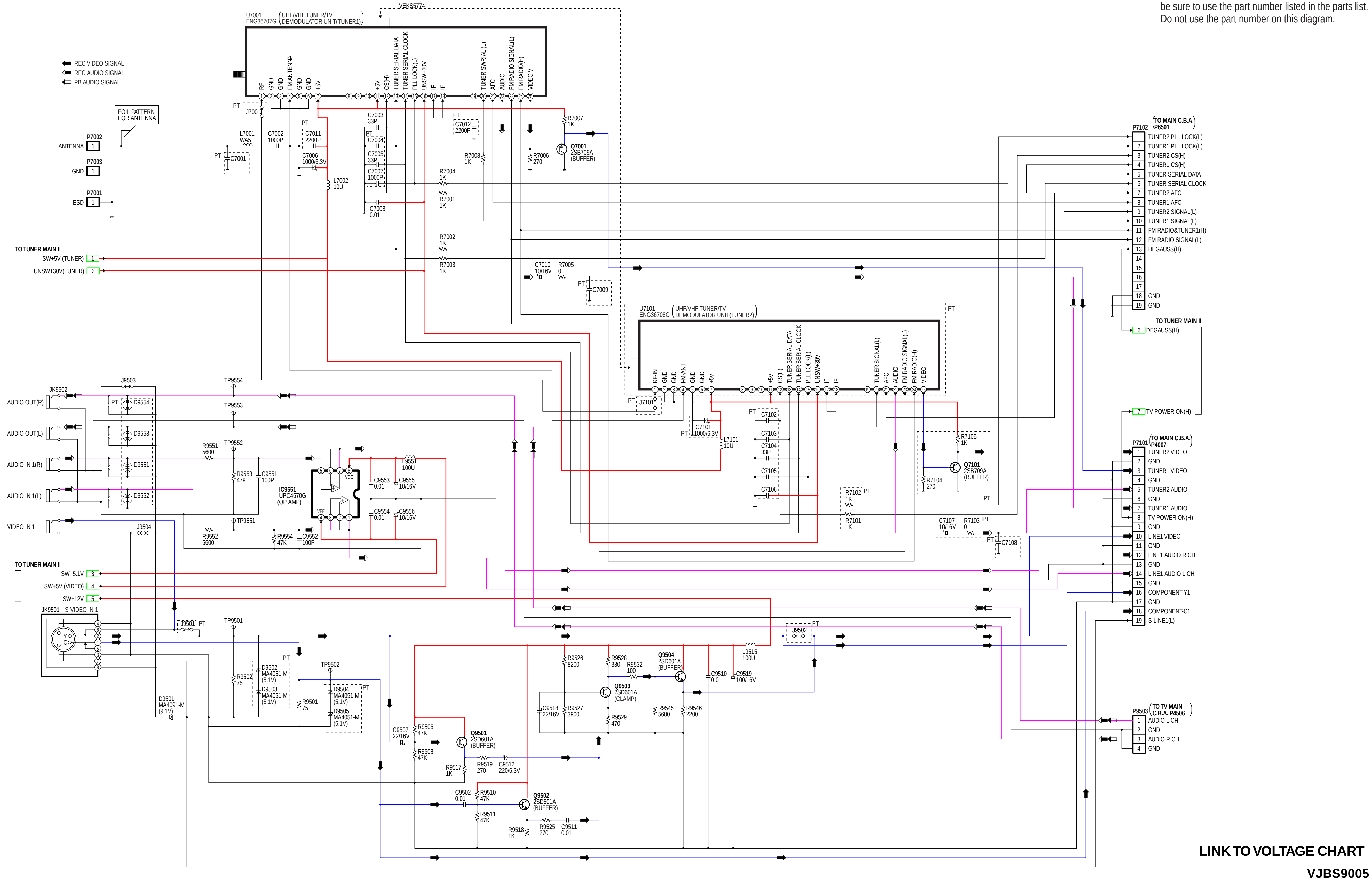
LINK TO VOLTAGE CHART

TUNER MAIN I SCHEMATIC DIAGRAM

NOTE:
PARTS ENCLOSED IN DASHED LINES MARKED "PT" ARE NOT USED.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE: For placing a purchase order of the parts, be sure to use the part number listed in the parts list. Do not use the part number on this diagram.



LINK TO VOLTAGE CHART

TUNER MAIN II SCHEMATIC DIAGRAM

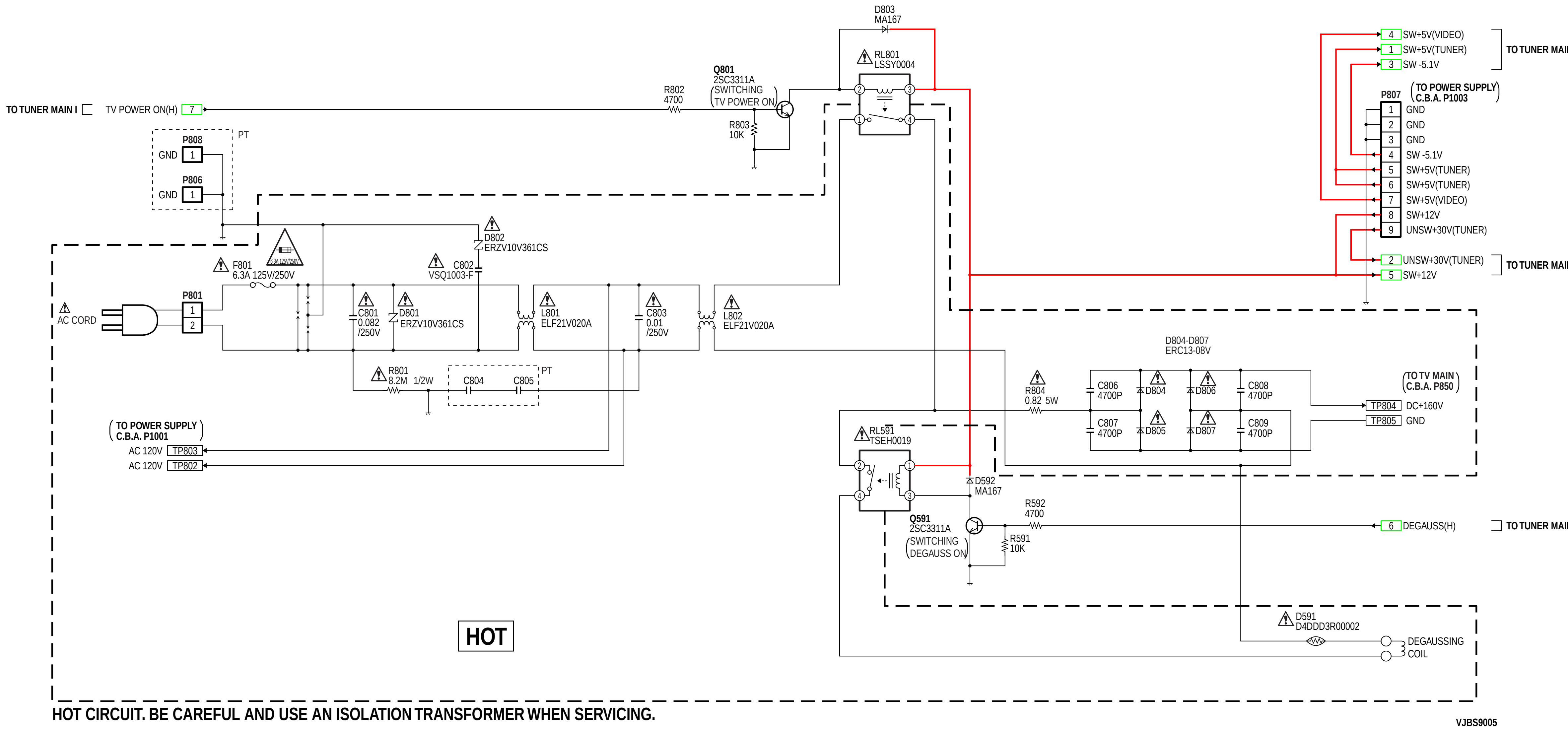
NOTE:
PARTS ENCLOSED IN DASHED LINES MARKED "PT" ARE NOT USED.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE: For placing a purchase order of the parts, be sure to use the part number listed in the parts list. Do not use the part number on this diagram.

CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE 6.3A 125V/250V FUSE.
ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES D' INCENDIE N' UTILISERQUE DES FUSIBLE DE MÊME TYPE 6.3A 125V/250V

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.



HOT CIRCUIT. BE CAREFUL AND USE AN ISOLATION TRANSFORMER WHEN SERVICING.

LINK TO VOLTAGE CHART

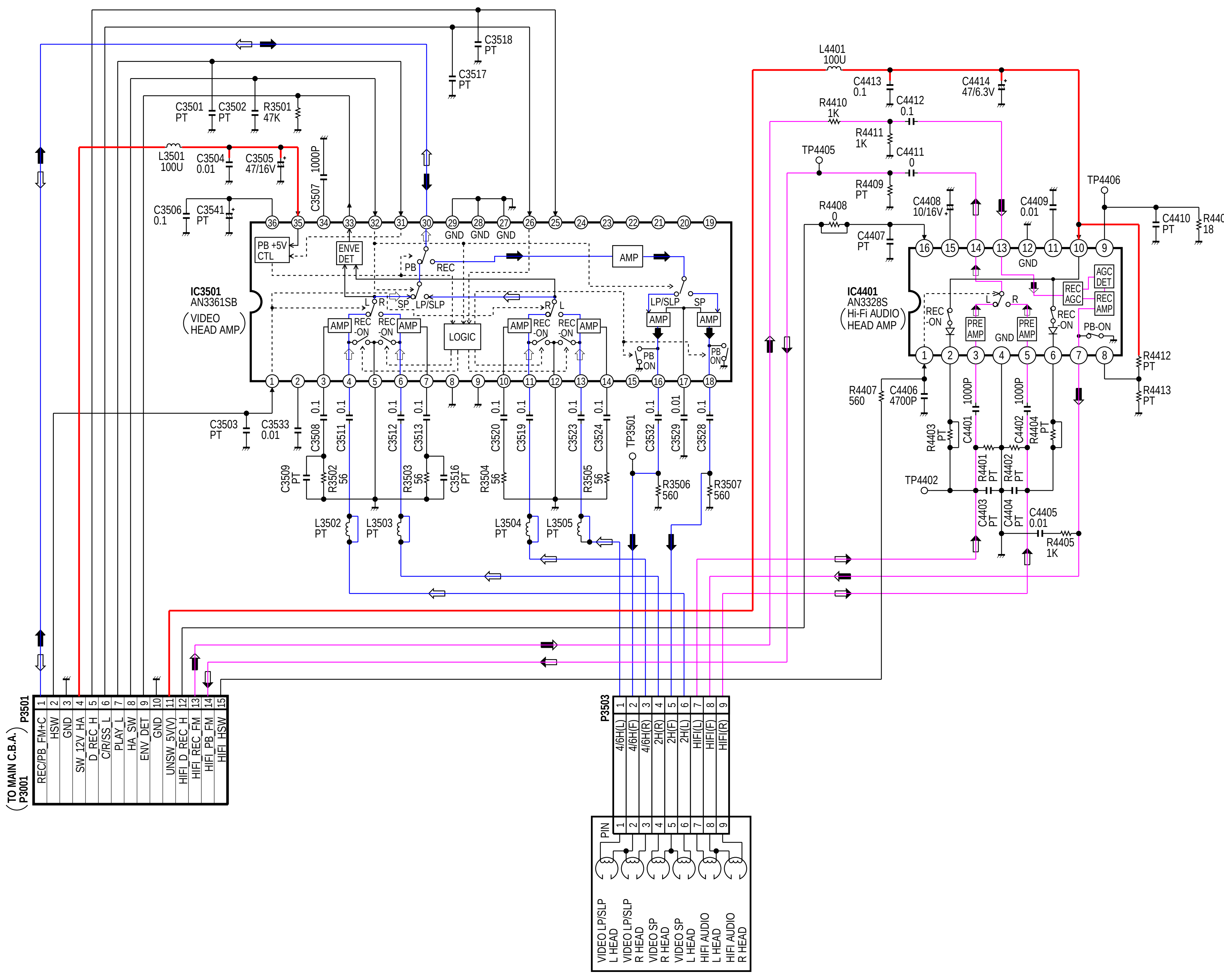
Hi-Fi AUDIO/VIDEO HEAD AMP SCHEMATIC DIAGRAM

NOTE:
PARTS ENCLOSED IN DASHED LINES MARKED "PT" ARE NOT USED.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE: For placing a purchase order of the parts, be sure to use the part number listed in the parts list. Do not use the part number on this diagram.

REC VIDEO SIGNAL
PB VIDEO SIGNAL
REC AUDIO SIGNAL
PB AUDIO SIGNAL



LINK TO VOLTAGE CHART

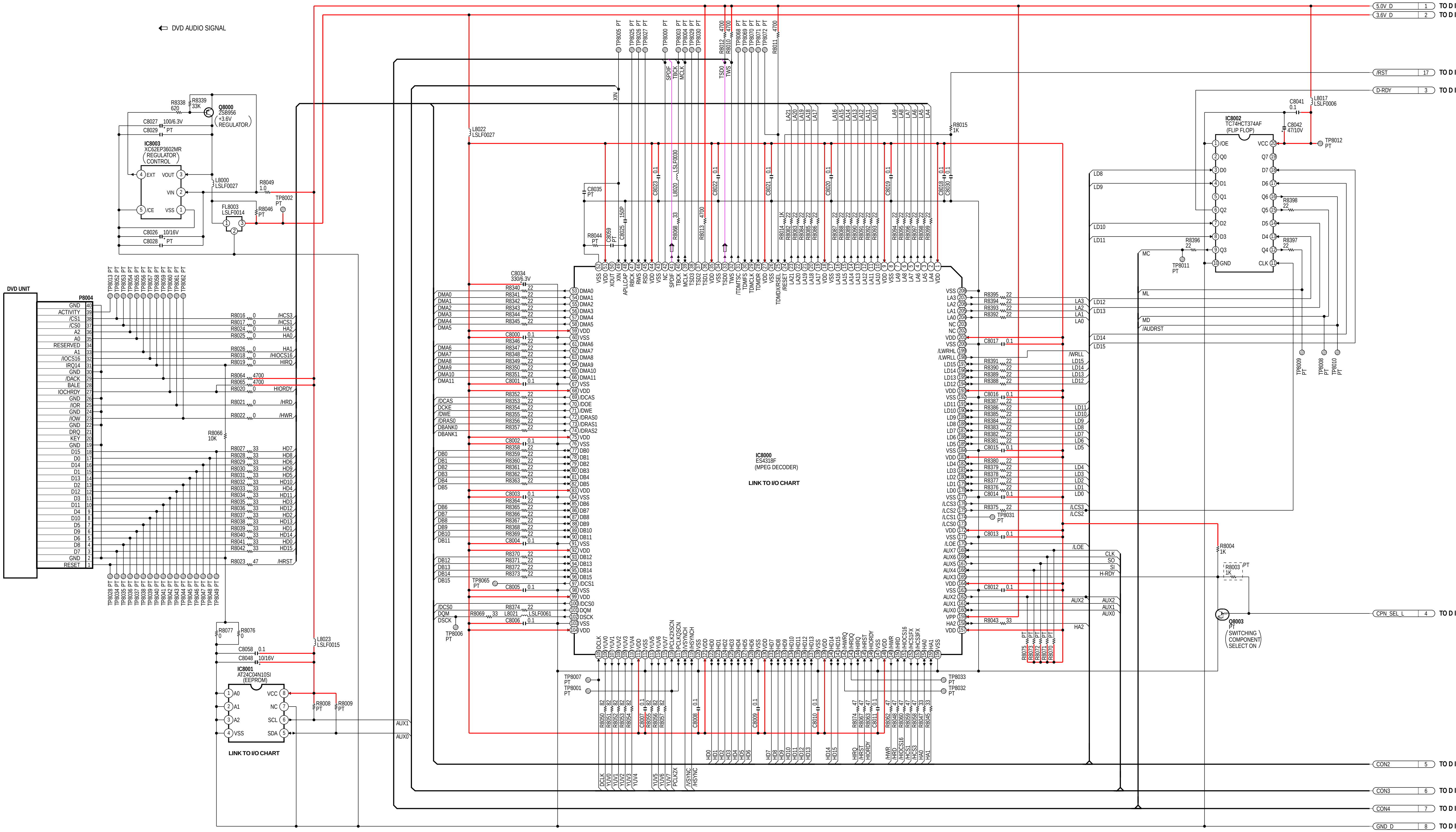
LSJB2010
PV-DF2702/PV-DF2702-K
Hi-Fi AUDIO/VIDEO HEAD AMP SCHEMATIC DIAGRAM

DVD DECODER I SCHEMATIC DIAGRAM

NOTE:
PARTS ENCLOSED IN DASHED LINES MARKED "PT" ARE NOT USED.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE: For placing a purchase order of the parts, be sure to use the part number listed in the parts list. Do not use the part number on this diagram.



LINK TO VOLTAGE CHART

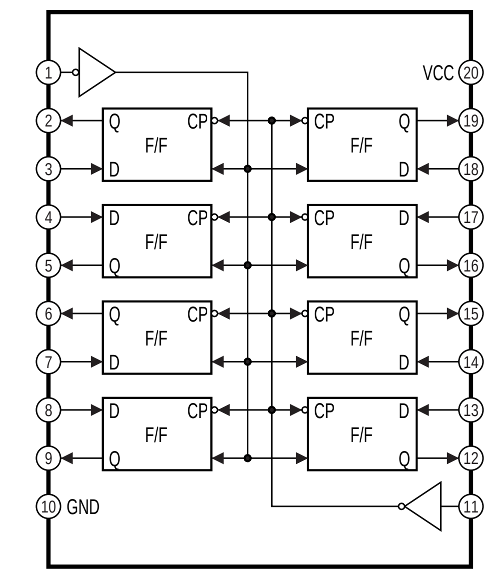
I/O CHART OF IC8000

Pin No.	I/O	Signal Name	Description
1	I	VDD	+3.6V
2	O	LA4	Memory address 4
3	O	LA5	Memory address 5
4	O	LA6	Memory address 6
5	O	LA7	Memory address 7
6	O	LA8	Memory address 8
7	O	LA9	Memory address 9
8	-	VSS	Ground
9	I	VDD	+3.6V
10	O	LA10	Memory address 10
11	O	LA11	Memory address 11
12	O	LA12	Memory address 12
13	O	LA13	Memory address 13
14	O	LA14	Memory address 14
15	O	LA15	Memory address 15
16	O	LA16	Memory address 16
17	-	VSS	Ground
18	I	VDD	+3.6V
19	O	LA17	Memory address 17
20	O	LA18	Memory address 18
21	O	LA19	Memory address 19
22	O	LA20	Memory address 20
23	O	LA21	Memory address 21
24	I	/RESET	Reset : low
25	-	TDMDX/RSEL	(Not used)
26	-	VSS	Ground
27	I	VDD	+3.6V
28	-	TDMDR	(Not used)
29	-	TDMCLK	(Not used)
30	-	TDMFS	(Not used)
31	-	/TDMTSC	(Not used)
32	O	TWS	Audio transmit frame sync
33	O	TSD0	Audio serial data
34	-	VSS	Ground
35	I	VDD	+3.6V
36	-	TSD1	(Not used)
37	-	TSD2	(Not used)
38	-	TSD3	(Not used)
39	I/O	MCLK	Audio master clock
40	I/O	TBCK	Audio transmit bit clock
41	O	SPDIF	IEC958 audio data
42	-	NC	(Not used)
43	-	VSS	Ground
44	I	VDD	+3.6V
45	-	RSD	(Not used)
46	-	RWS	(Not used)
47	-	RBCK	(Not used)
48	-	APLLCAP	(Not used)
49	I	XIN	27MHz clock
50	-	XOUT	(Not used)
51	I	VDD	+3.6V
52	-	VSS	Ground
53	O	DMA0	SDRAM address 0
54	O	DMA1	SDRAM address 1
55	O	DMA2	SDRAM address 2
56	O	DMA3	SDRAM address 3
57	O	DMA4	SDRAM address 4
58	O	DMA5	SDRAM address 5
59	I	VDD	+3.6V
60	-	VSS	Ground
61	O	DMA6	SDRAM address 6
62	O	DMA7	SDRAM address 7
63	O	DMA8	SDRAM address 8
64	O	DMA9	SDRAM address 9
65	O	DMA10	SDRAM address 10
66	O	DMA11	SDRAM address 11
67	-	VSS	Ground
68	I	VDD	+3.6V
69	O	/DCAS	Column address strobe : low
70	-	/DOE	(Not used)
71	O	/DWE	Write enable : low
72	O	/DRAS0	Row address strobe : low
73	-	/DRAS1	(Not used)
74	-	/DRAS2	(Not used)
75	I	VDD	+3.6V
76	-	VSS	Ground
77	I/O	DB0	SDRAM data 0
78	I/O	DB1	SDRAM data 1
79	I/O	DB2	SDRAM data 2
80	I/O	DB3	SDRAM data 3
81	I/O	DB4	SDRAM data 4
82	I/O	DB5	SDRAM data 5
83	I	VDD	+3.6V
84	-	VSS	Ground
85	I/O	DB6	SDRAM data 6
86	I/O	DB7	SDRAM data 7
87	I/O	DB8	SDRAM data 8
88	I/O	DB9	SDRAM data 9
89	I/O	DB10	SDRAM data 10
90	I/O	DB11	SDRAM data 11
91	-	VSS	Ground
92	I	VDD	+3.6V
93	I/O	DB12	SDRAM data 12
94	I/O	DB13	SDRAM data 13
95	I/O	DB14	SDRAM data 14
96	I/O	DB15	SDRAM data 15
97	O	/DCS1	SDRAM chip select : low
98	-	VSS	Ground
99	I	VDD	+3.6V
100	O	/DCS0	SDRAM chip select : low
101	O	DQM	Data input/output mask
102	O	DSCK	SDRAM clock
103	-	VSS	Ground
104	I	VDD	+3.6V
105	I	DCLK	27MHz clock
106	O	YUV0	YUV data 0
107	O	YUV1	YUV data 1
108	O	YUV2	YUV data 2
109	O	YUV3	YUV data 3
110	O	YUV4	YUV data 4
111	I	VDD	+3.6V
112	-	VSS	Ground
113	I	YUV5	YUV data 5
114	I	YUV6	YUV data 6
115	I	YUV7	YUV data 7
116	I	PCLK2XSCN	2X pixel clock
117	I/O	PCLKQSCN	pixel clock
118	I/O	/VSYNCH	V-sync signal
119	I/O	/HSYNCH	V-sync signal
120	-	VSS	Ground
121	I	VDD	+3.6V
122	I/O	HD0	Host data 0
123	I/O	HD1	Host data 1
124	I/O	HD2	Host data 2
125	I/O	HD3	Host data 3
126	I/O	HD4	Host data 4
127	I/O	HD5	Host data 5
128	I/O	HD6	Host data 6
129	-	VSS	Ground
130	I	VDD	+3.6V
131	I/O	HD7	Host data 7
132	I/O	HD8	Host data 8
133	I/O	HD9	Host data 9
134	I/O	HD10	Host data 10
135	I/O	HD11	Host data 11
136	I/O	HD12	Host data 12
137	I/O	HD13	Host data 13
138	-	VSS	Ground
139	I	VDD	+3.6V
140	I/O	HD14	Host data 14
141	I/O	HD15	Host data 15
142	-	/HWRQ	(Not used)
143	-	/HRDQ	(Not used)
144	I/O	HIRQ	Host interrupt
145	I	/HRST	Host reset : low
146	I	HIORDY	Host I/O ready
147	-	VSS	Ground
148	I	VDD	+3.6V
149	O	/HWR	Host write request : low
150	I	/HRD	Host read request : low
151	I	/HIOCS16	Device 16-bit data transfer
152	O	/HCS1FX	Host select 1
153	O	/HCS3FX	Host select 3
154	I/O	HA0	Host address 0
155	I/O	HA1	Host address 1
156	-	VSS	Ground
157	I	VDD	+3.6V
158	I/O	HA2	Host address 2
159	I	VPP	Peripheral protection voltage
160	I/O	AUX0	I2C serial data
161	I	AUX1	I2C serial clock
162	O	AUX2	DVD ready (Busy : low)
163	-	VSS	Ground
164	I	VDD	+3.6V
165	-	AUX3	(Not used)
166	I	AUX4	DVD chip select : low
167	O	AUX5	Serial data 1
168	I	AUX6	Serial data 0
169	I	AUX7	Serial clock
170	O	/LOE	Output enable : low
171	-	VSS	Ground
172	I	VDD	+3.6V
173	-	/LCS0	(Not used)
174	-	/LCS1	(Not used)
175	O	/LCS2	Clock
176	O	/LCS3	Memory chip select : low
177	-	VSS	Ground
178	I/O	LD0	Memory data 0
179	I/O	LD1	Memory data 1
180	I/O	LD2	Memory data 2
181	I/O	LD3	Memory data 3
182	I/O	LD4	Memory data 4
183	I	VDD	+3.6V
184	-	VSS	Ground
185	I/O	LD5	Memory data 5
186	I/O	LD6	Memory data 6
187	I/O	LD7	Memory data 7
188	I/O	LD8	Memory data 8
189	I/O	LD9	Memory data 9
190	I/O	LD10	Memory data 10
191	I/O	LD11	Memory data 11
192	-	VSS	Ground
193	I	VDD	+3.6V
194	I/O	LD12	Memory data 12
195	I/O	LD13	Memory data 13
196	I/O	LD14	Memory data 14
197	I/O	LD15	Memory data 15
198	O	/LWRLL	Write enable : low
199	-	/LWRHL	(Not used)
200	-	VSS	Ground
201	I	VDD	+3.6V
202	-	NC	(Not used)
203	-	NC	(Not used)
204	O	LA0	Memory address 0
205	O	LA1	Memory address 1
206	O	LA2	Memory address 2
207	O	LA3	Memory address 3
208	-	VSS	Ground

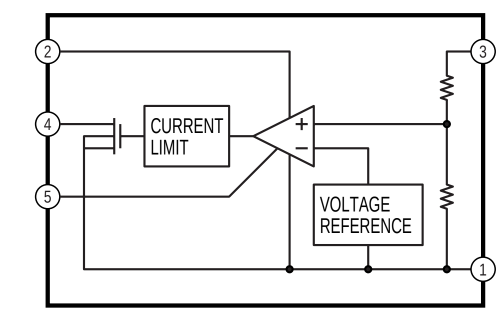
I/O CHART OF IC8001

Pin No.	I/O	Signal Name	Description
1	-	A0	(Not used)
2	-	A1	(Not used)
3	-	A2	(Not used)
4	-	VSS	Ground
5	I/O	SDA	I2C Serial data
6	O	SCL	I2C Serial clock
7	-	NC	(Not used)
8	I	VCC	+5.0V

IC8002 FLIP FLOP IC-DETAIL BLOCK DIAGRAM



IC8003 REGULATOR CONTROL IC-DETAIL BLOCK DIAGRAM

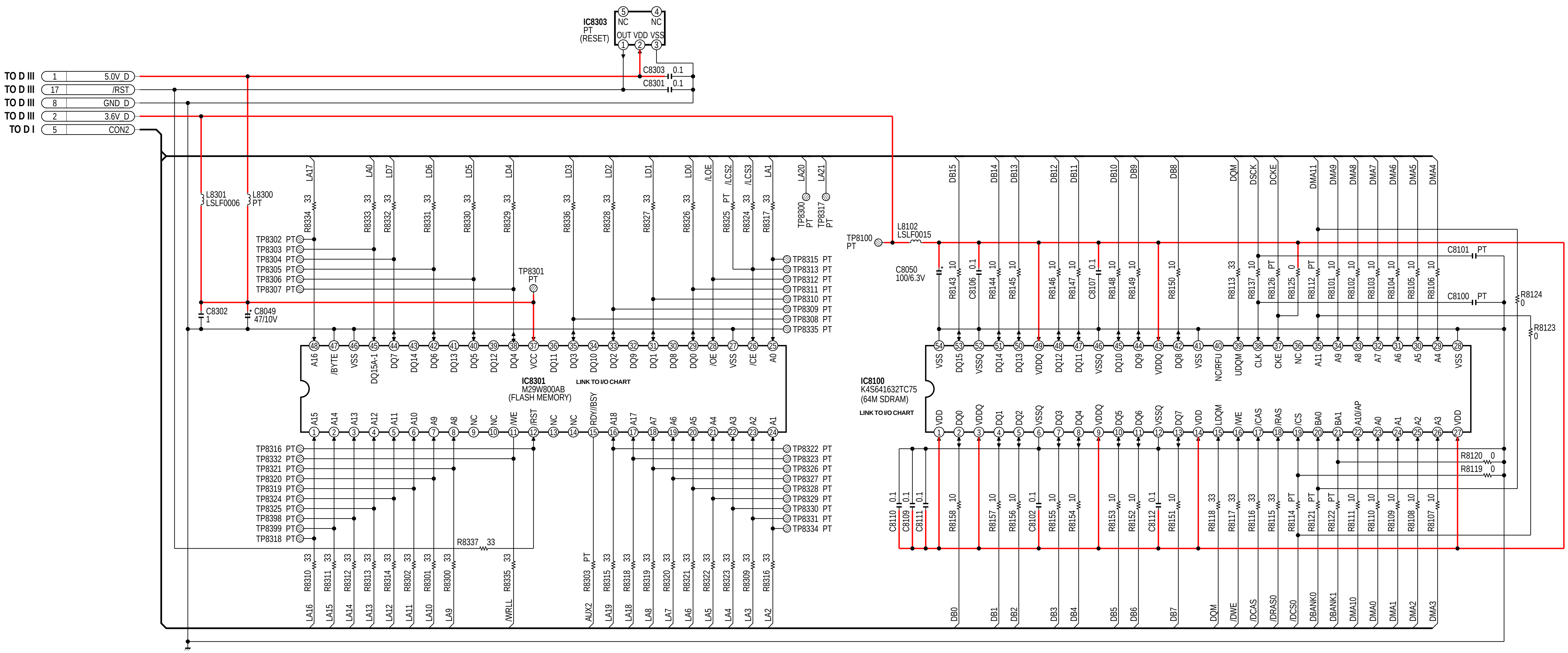


DVD DECODER II SCHEMATIC DIAGRAM

NOTE:
PARTS ENCLOSED IN DASHED LINES MARKED "PT" ARE NOT USED.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE: For placing a purchase order of the parts, be sure to use the part number listed in the parts list. Do not use the part number on this diagram.



LINK TO VOLTAGE CHART

I/O CHART OF IC8301

Pin No.	I/O	Signal Name	Description
1	I	A15	Memory address 16
2	I	A14	Memory address 15
3	I	A13	Memory address 14
4	I	A12	Memory address 13
5	I	A11	Memory address 12
6	I	A10	Memory address 11
7	I	A9	Memory address 10
8	I	A8	Memory address 9
9	-	NC	(Not used)
10	-	NC	(Not used)
11	I	/WE	Write enable : low
12	I	/RST	Reset : low
13	-	NC	(Not used)
14	-	NC	(Not used)
15	I	RDY/BSY	DVD Ready (Busy : low)
16	I	A18	Memory address 19
17	I	A17	Memory address 18
18	I	A7	Memory address 8
19	I	A6	Memory address 7
20	I	A5	Memory address 6
21	I	A4	Memory address 5
22	I	A3	Memory address 4
23	I	A2	Memory address 3
24	I	A1	Memory address 2
25	I	A0	Memory address 1
26	I	/CE	Memory chip select : low
27	-	VSS	Ground
28	I	/OE	Output enable : low
29	I/O	DQ0	Memory data 0
30	I/O	DQ8	Memory data 8
31	I/O	DQ1	Memory data 1
32	I/O	DQ9	Memory data 9
33	I/O	DQ2	Memory data 2
34	I/O	DQ10	Memory data 10
35	I/O	DQ3	Memory data 3
36	I/O	DQ11	Memory data 11
37	I	VCC	+5.0V
38	I/O	DQ4	Memory data 4
39	I/O	DQ12	Memory data 12
40	I/O	DQ5	Memory data 5
41	I/O	DQ13	Memory data 13
42	I/O	DQ6	Memory data 6
43	I/O	DQ14	Memory data 14
44	I/O	DQ7	Memory data 7
45	I/O	DQ15A-1	Memory address 0
46	-	VSS	Ground
47	-	/BYTE	Ground
48	I	A16	Memory address 16

I/O CHART OF IC8100

Pin No.	I/O	Signal Name	Description
1	I	VDD	+3.6V
2	I/O	DQ0	SDRAM data 7
3	I	VDDQ	+3.6V
4	I/O	DQ1	SDRAM data 6
5	I/O	DQ2	SDRAM data 5
6	-	VSSQ	Ground
7	I/O	DQ3	SDRAM data 4
8	I/O	DQ4	SDRAM data 3
9	I	VDDQ	+3.6V
10	I/O	DQ5	SDRAM data 2
11	I/O	DQ6	SDRAM data 1
12	-	VSSQ	Ground
13	I/O	DQ7	SDRAM data 0
14	I	VDD	+3.6V
15	I	LDQM	Data input/output mask
16	I	/WE	Write enable : low
17	I	/CAS	Column address strobe : low
18	I	/RAS	Row address strobe : low
19	I	/CS	SDRAM chip select : low
20	I	BA0	(Not used)
21	I	BA1	(Not used)
22	I	A10	SDRAM address 10
23	I	A0	SDRAM address 0
24	I	A1	SDRAM address 1
25	I	A2	SDRAM address 2
26	I	A3	SDRAM address 3
27	I	VDD	+3.6V

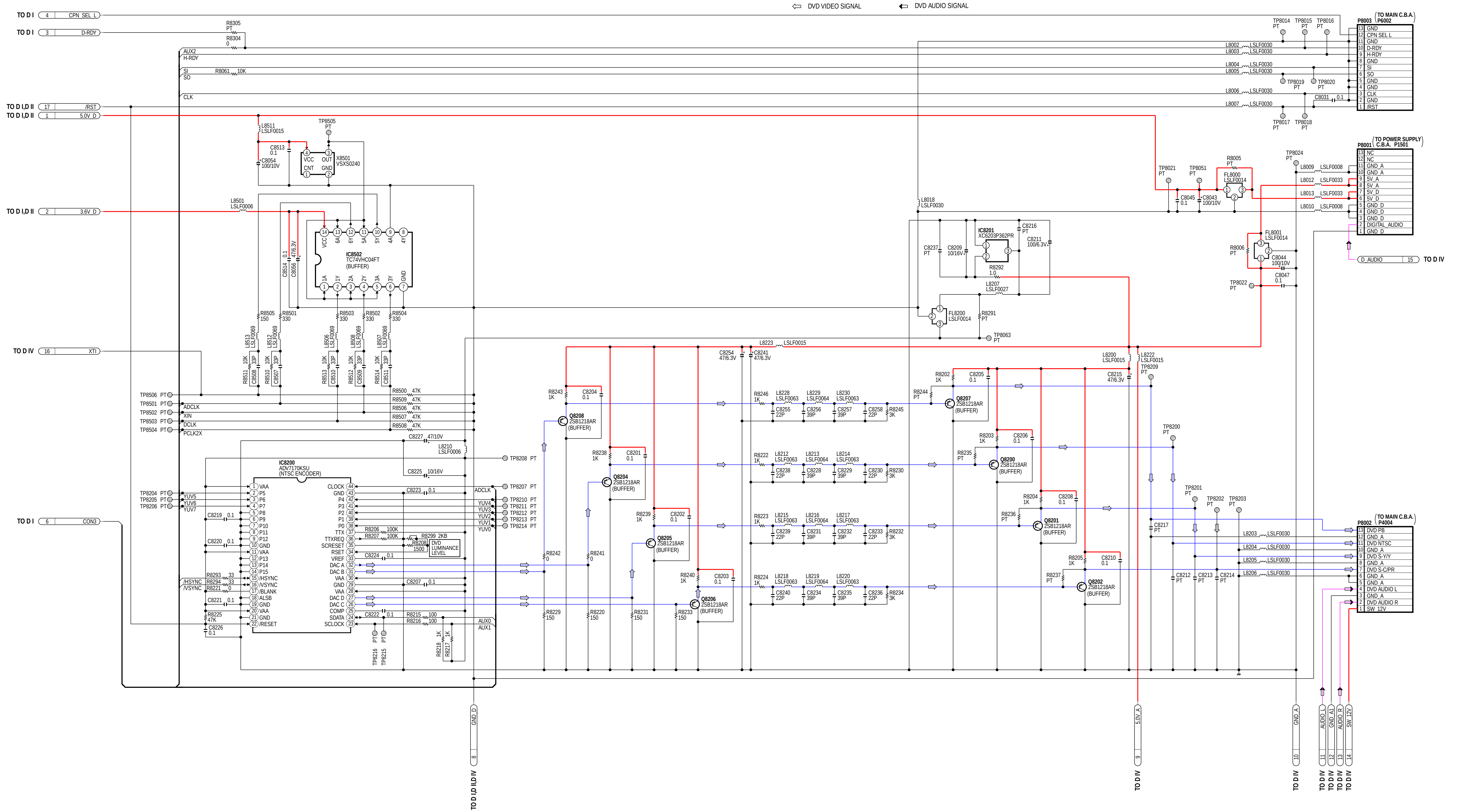
Pin No.	I/O	Signal Name	Description
28	-	VSS	Ground
29	I	A4	SDRAM address 4
30	I	A5	SDRAM address 5
31	I	A6	SDRAM address 6
32	I	A7	SDRAM address 7
33	I	A8	SDRAM address 8
34	I	A9	SDRAM address 9
35	I	A11	SDRAM address 11
36	-	NC	(Not used)
37	-	CKE	(Not used)
38	I	CLK	SDRAM clock
39	I	UDQM	Data input/output mask
40	-	NC	(Not used)
41	-	VSS	Ground
42	I/O	DQ8	SDRAM data 8
43	I	VDDQ	+3.6V
44	I/O	DQ9	SDRAM data 9
45	I/O	DQ10	SDRAM data 10
46	-	VSSQ	Ground
47	I/O	DQ11	SDRAM data 11
48	I/O	DQ12	SDRAM data 12
49	I	VDDQ	+3.6V
50	I/O	DQ13	SDRAM data 13
51	I/O	DQ14	SDRAM data 14
52	-	VSSQ	Ground
53	I/O	DQ15	SDRAM data 15
54	-	VSS	Ground

DVD DECODER III SCHEMATIC DIAGRAM

NOTE:
PARTS ENCLOSED IN DASHED LINES MARKED "PT" ARE NOT USED.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE: For placing a purchase order of the parts, be sure to use the part number listed in the parts list. Do not use the part number on this diagram.



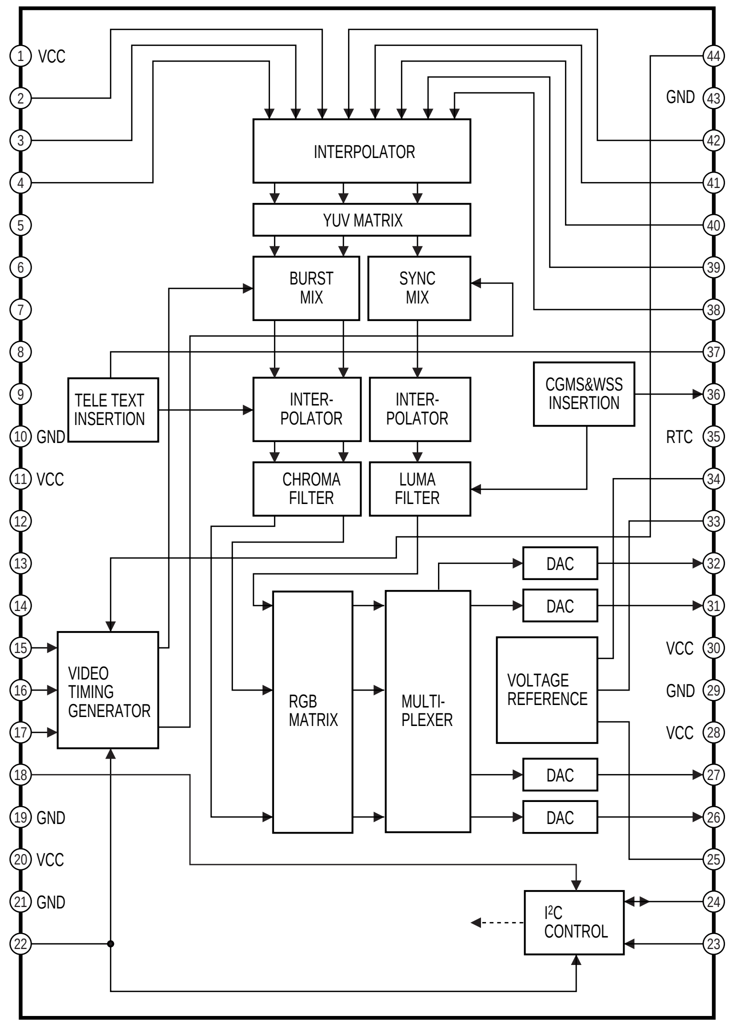
LINK TO VOLTAGE CHART

LSJB2007

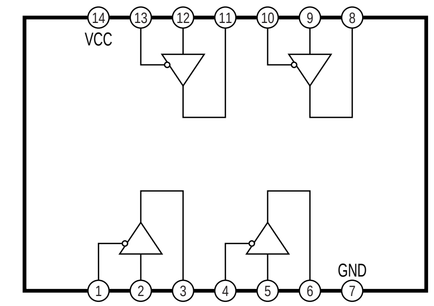
PV-DF2702/PV-DF2702-K

DVD DECODER III SCHEMATIC DIAGRAM

IC8200 NTSC ENCODER IC-DETAIL BLOCK DIAGRAM



IC8502 BUFFER IC-DETAIL BLOCK DIAGRAM



DVD DECODER IV SCHEMATIC DIAGRAM

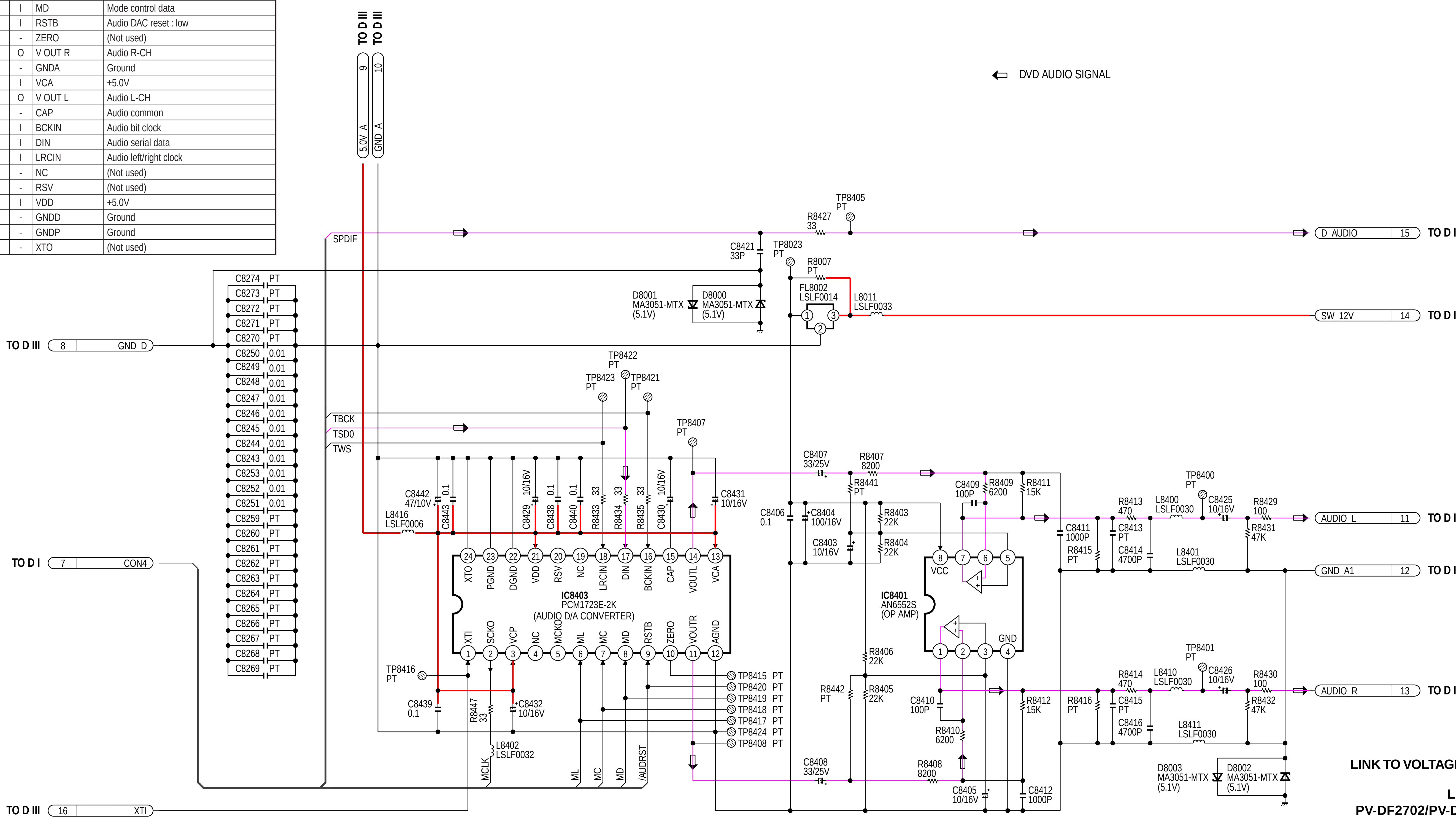
NOTE:
PARTS ENCLOSED IN DASHED LINES MARKED "PT" ARE NOT USED.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE: For placing a purchase order of the parts, be sure to use the part number listed in the parts list. Do not use the part number on this diagram.

I/O CHART OF IC8403

Pin No.	I/O	Signal Name	Description
1	I	XTI	27MHz clock
2	O	SCKO	System clock
3	I	VCP	+5.0V
4	-	NC	(Not used)
5	-	MCKO	(Not used)
6	I	ML	Mode control latch
7	I	MC	Mode control clock
8	I	MD	Mode control data
9	I	RSTB	Audio DAC reset : low
10	-	ZERO	(Not used)
11	O	V OUT R	Audio R-CH
12	-	GNDA	Ground
13	I	VCA	+5.0V
14	O	V OUT L	Audio L-CH
15	-	CAP	Audio common
16	I	BCKIN	Audio bit clock
17	I	DIN	Audio serial data
18	I	LRCIN	Audio left/right clock
19	-	NC	(Not used)
20	-	RSV	(Not used)
21	I	VDD	+5.0V
22	-	GNDD	Ground
23	-	GNDP	Ground
24	-	XTO	(Not used)



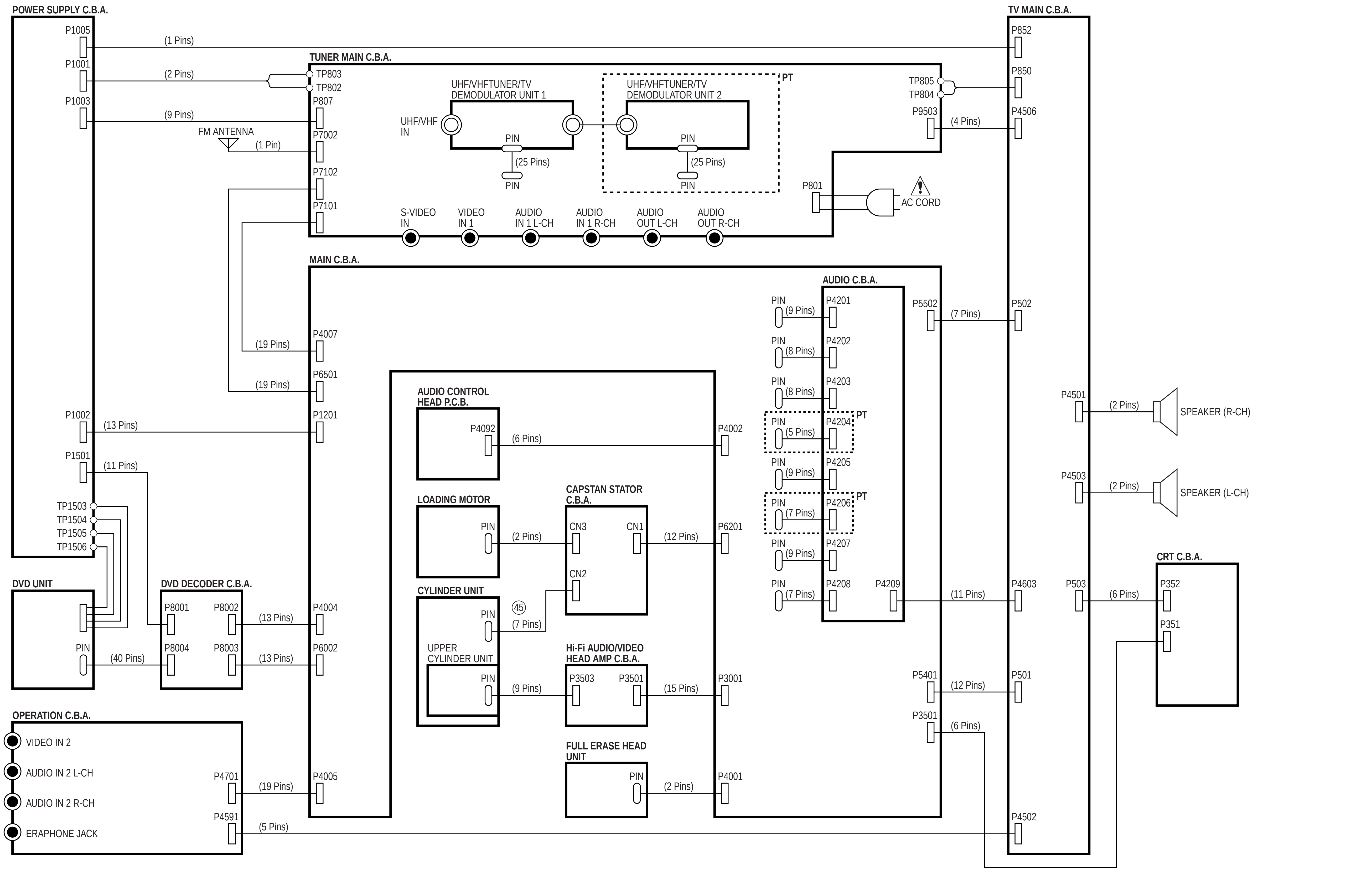
LINK TO VOLTAGE CHART

LSJB2007
PV-DF2702/PV-DF2702-K
DVD DECODER IV SCHEMATIC DIAGRAM

INTERCONNECTION SCHEMATIC DIAGRAM

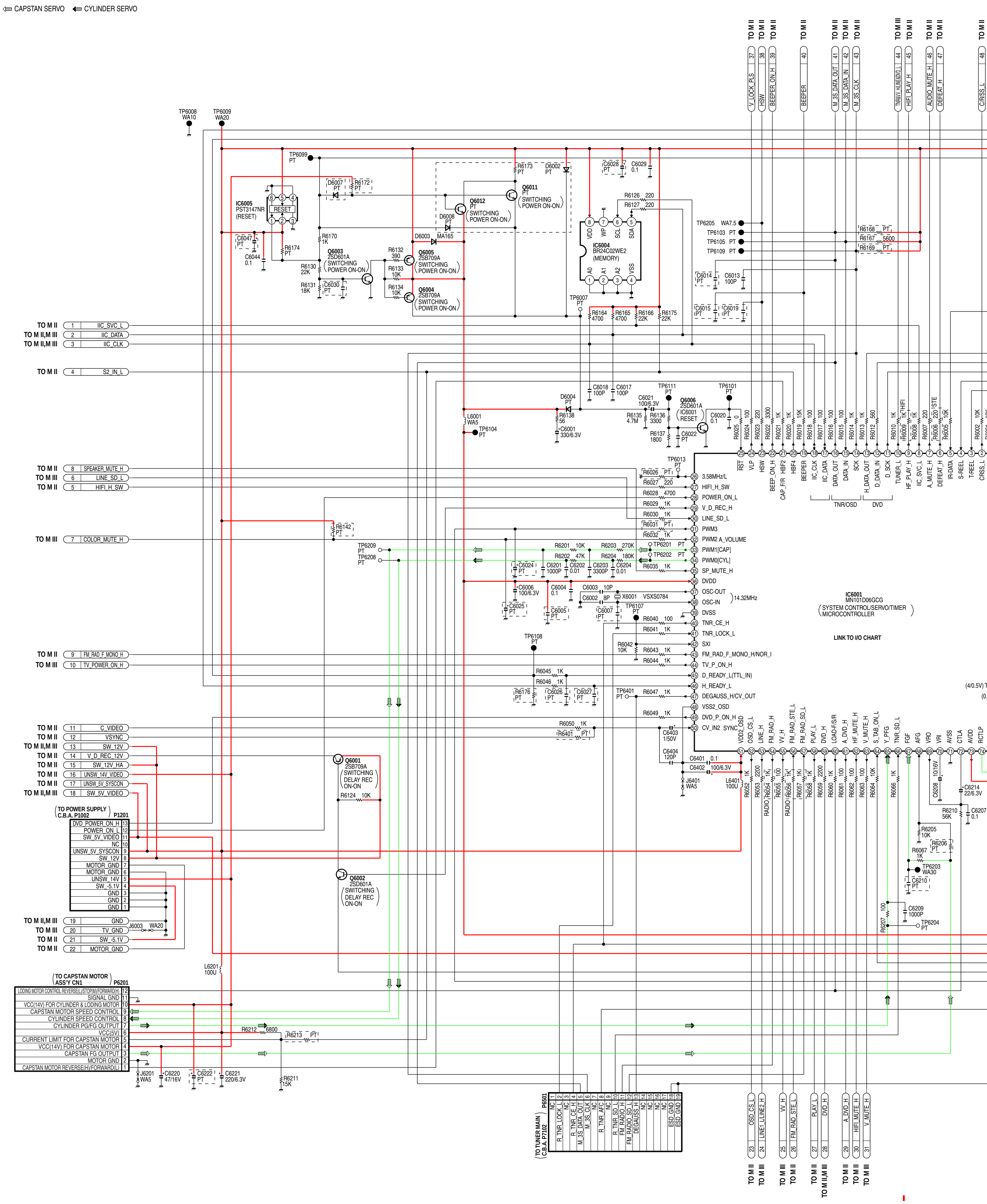
NOTE:
PARTS ENCLOSED IN DASHED LINES MARKED "PT" ARE NOT USED.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.



8.2. MAIN SCHEMATIC DIAGRAMS

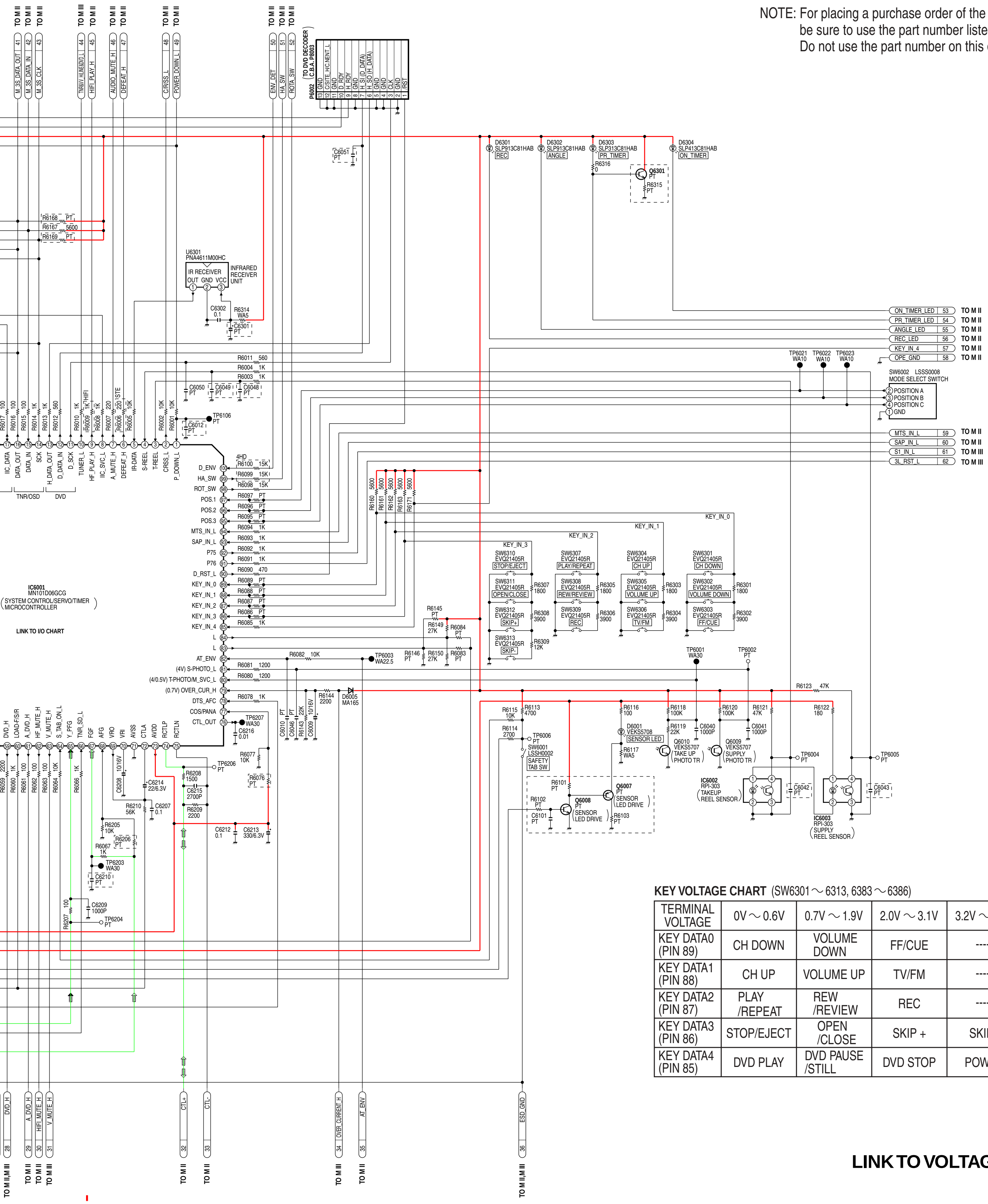
MAIN I SCHEMATIC DIAGRAM



NOTE:
PARTS ENCLOSED IN DASHED LINES MARKED "PT" ARE NOT USED.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE: For placing a purchase order of the parts, be sure to use the part number listed in the parts list. Do not use the part number on this diagram.



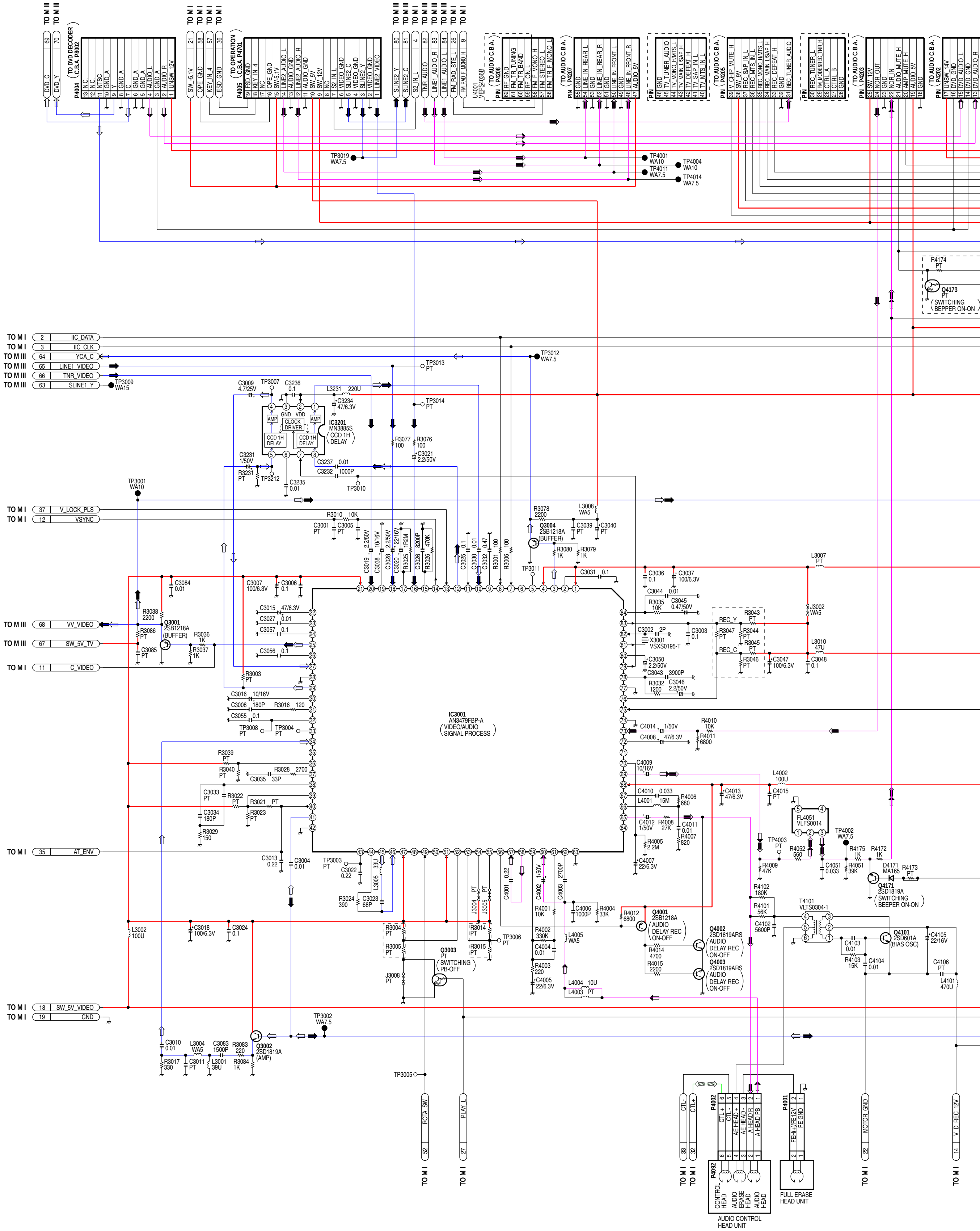
KEY VOLTAGE CHART (SW6301～6313, 6383～6386)

TERMINAL VOLTAGE	0V～0.6V	0.7V～1.9V	2.0V～3.1V	3.2V～4.4V
KEY DATA0 (PIN 89)	CH DOWN	VOLUME DOWN	FF/CUE	-----
KEY DATA1 (PIN 88)	CH UP	VOLUME UP	TV/FM	-----
KEY DATA2 (PIN 87)	PLAY /REPEAT	REW /REVIEW	REC	-----
KEY DATA3 (PIN 86)	STOP/EJECT	OPEN /CLOSE	SKIP +	SKIP -
KEY DATA4 (PIN 85)	DVD PLAY	DVD PAUSE /STILL	DVD STOP	POWER

LINK TO VOLTAGE CHART

LSJB2034
PV-DF2702/PV-DF2702-K
MAIN I SCHEMATIC DIAGRAM

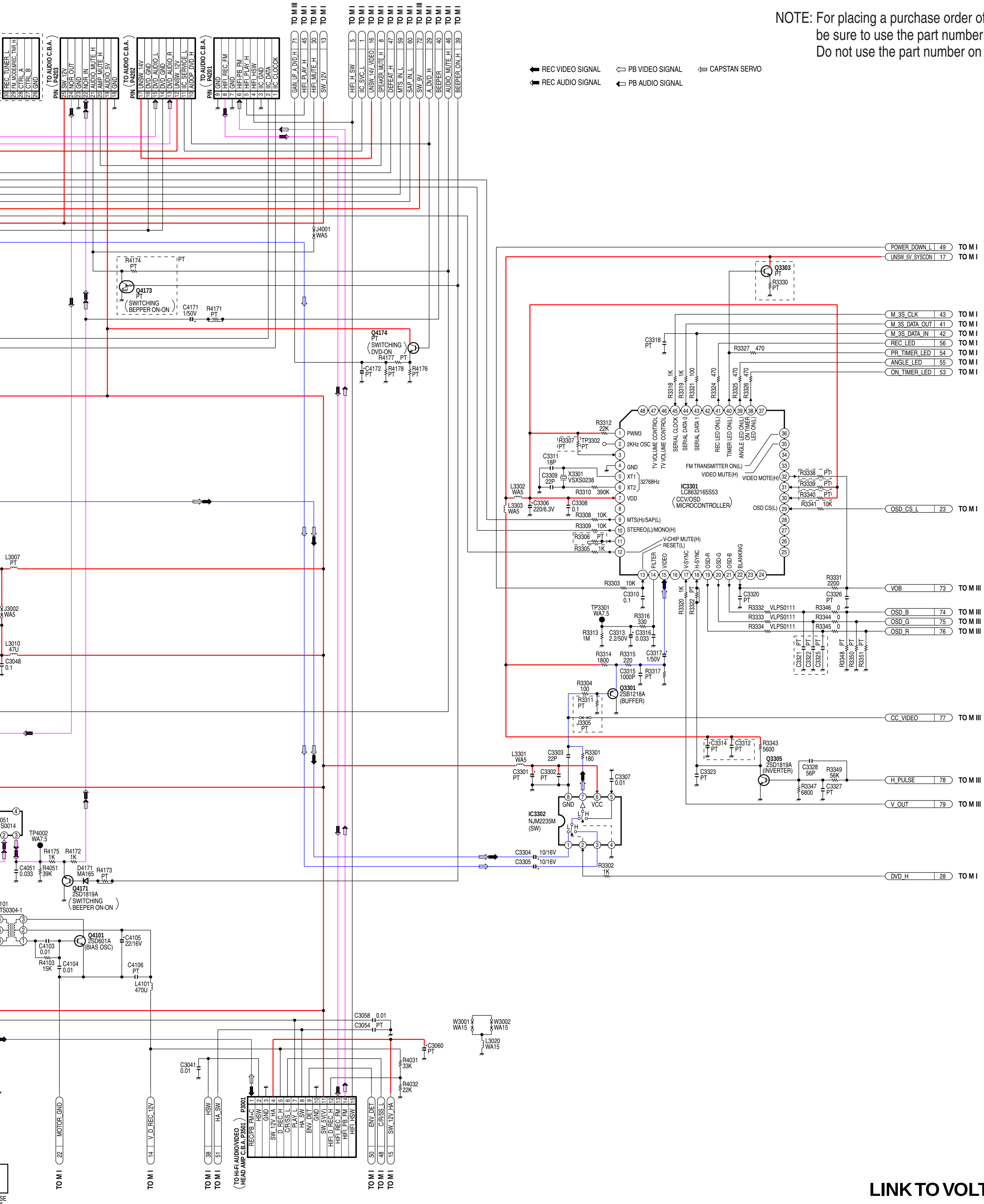
MAIN II SCHEMATIC DIAGRAM



NOTE:
PARTS ENCLOSED IN DASHED LINES MARKED "PT" ARE NOT USED.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE: For placing a purchase order of the parts, be sure to use the part number listed in the parts list. Do not use the part number on this diagram.

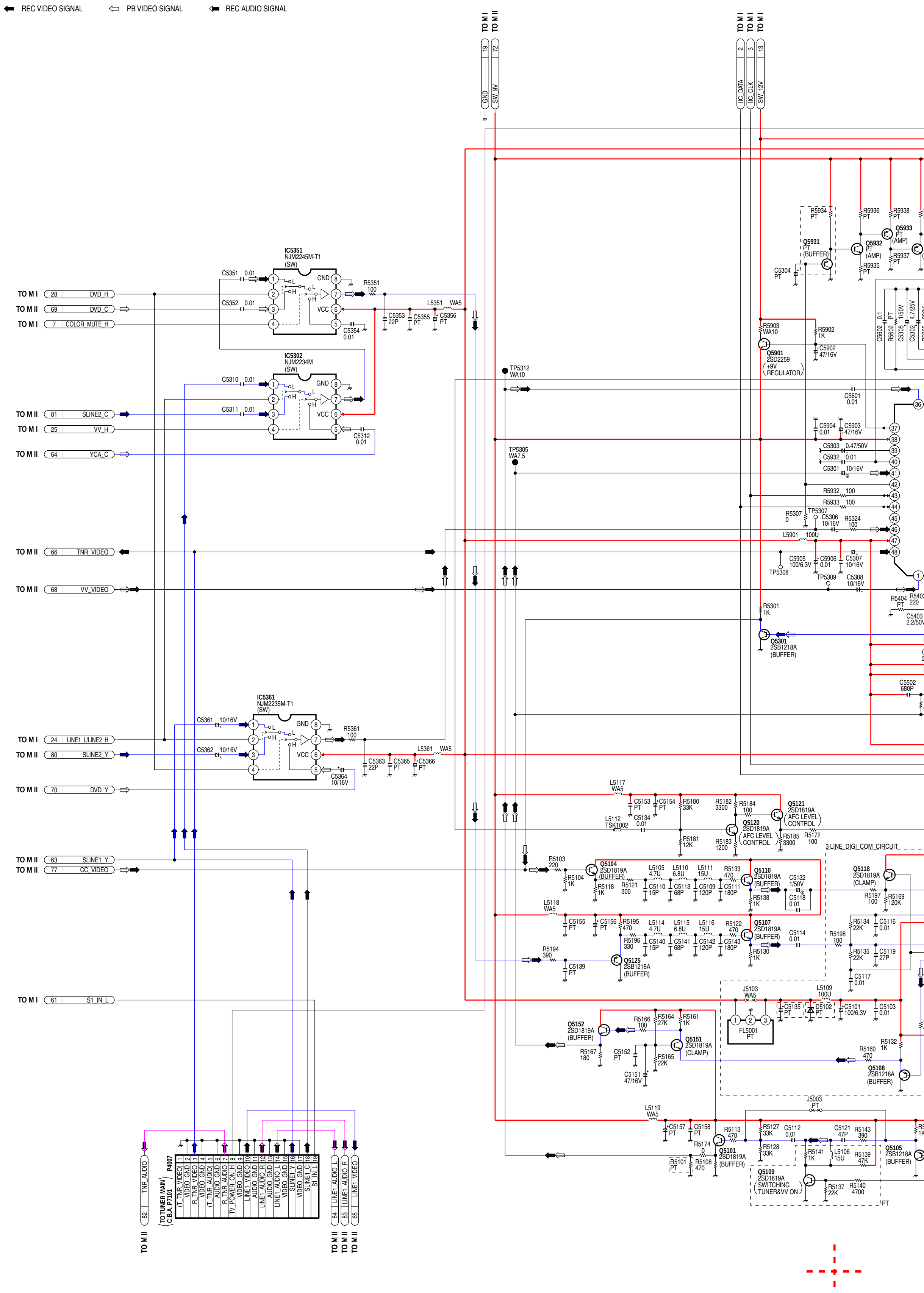


LINK TO VOLTAGE CHART

LSJB2034
PV-DF2702/PV-DF2702-K
MAIN II SCHEMATIC DIAGRAM

MAIN III SCHEMATIC DIAGRAM

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIG
SPECIAL CHARACTERISTICS IMPORTA
WHEN REPLACING ANY OF THESE CO
USE ONLY THE SPECIFIED PARTS.

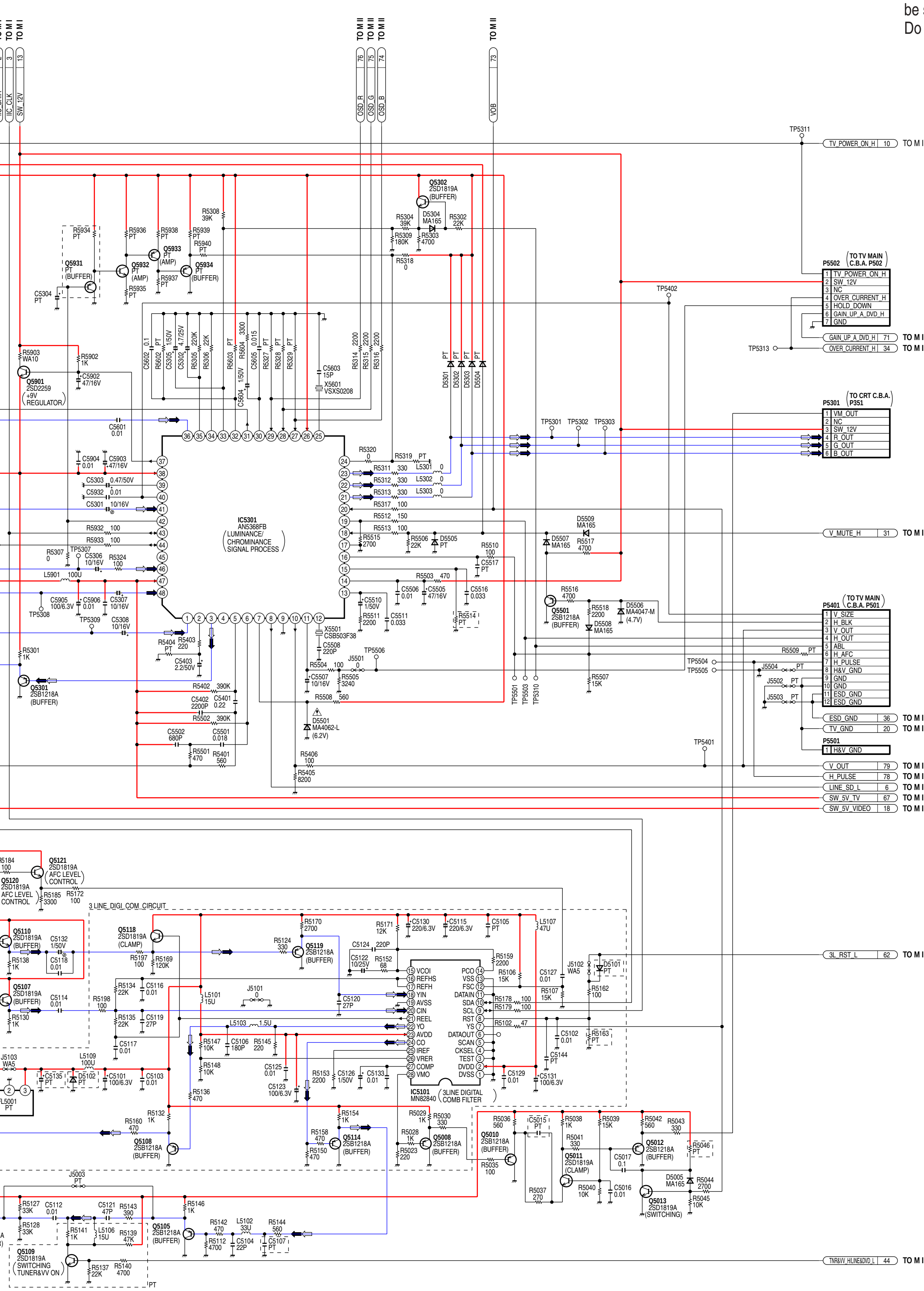


ORTANT SAFETY NOTICE:
PONENTS IDENTIFIED BY THE SIGN ⚠ HAVE
CIAL CHARACTERISTICS IMPORTANT FOR SAFETY.
N REPLACING ANY OF THESE COMPONENTS,
ONLY THE SPECIFIED PARTS.

NOTE:
PARTS ENCLOSED IN DASHED LINES MARKED "PT" ARE NOT USED.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE: For placing a purchase order of the parts, be sure to use the part number listed in the parts list. Do not use the part number on this diagram.



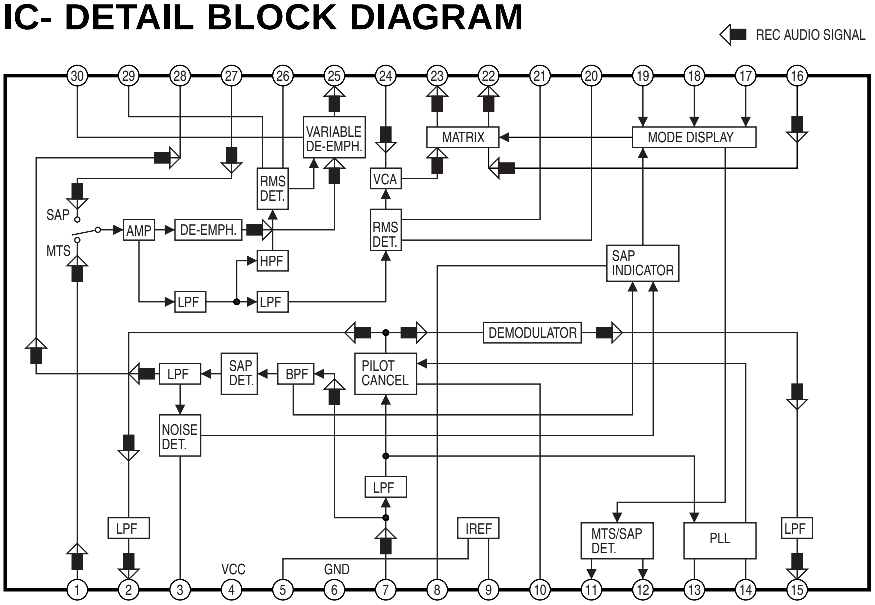
LINK TO VOLTAGE CHART

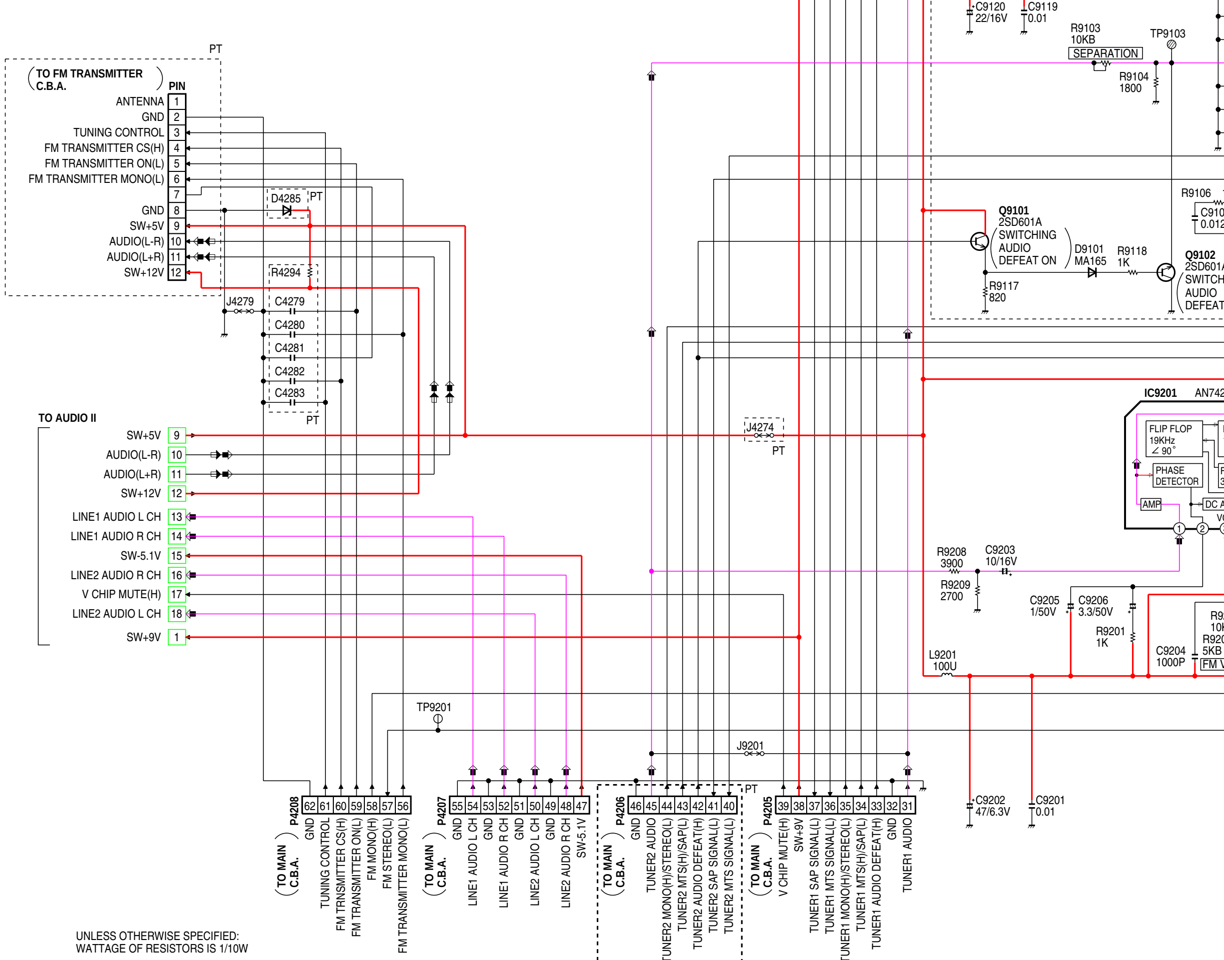
LSJB2034
PV-DF2702/PV-DF2702-K
MAIN III SCHEMATIC DIAGRAM

8.3. AUDIO SCHEMATIC DIAGRAMS

AUDIO I SCHEMATIC DIAGRAM

IC9001 MTS/SAP AUDIO PROCESS IC- DETAIL BLOCK DIAGRAM

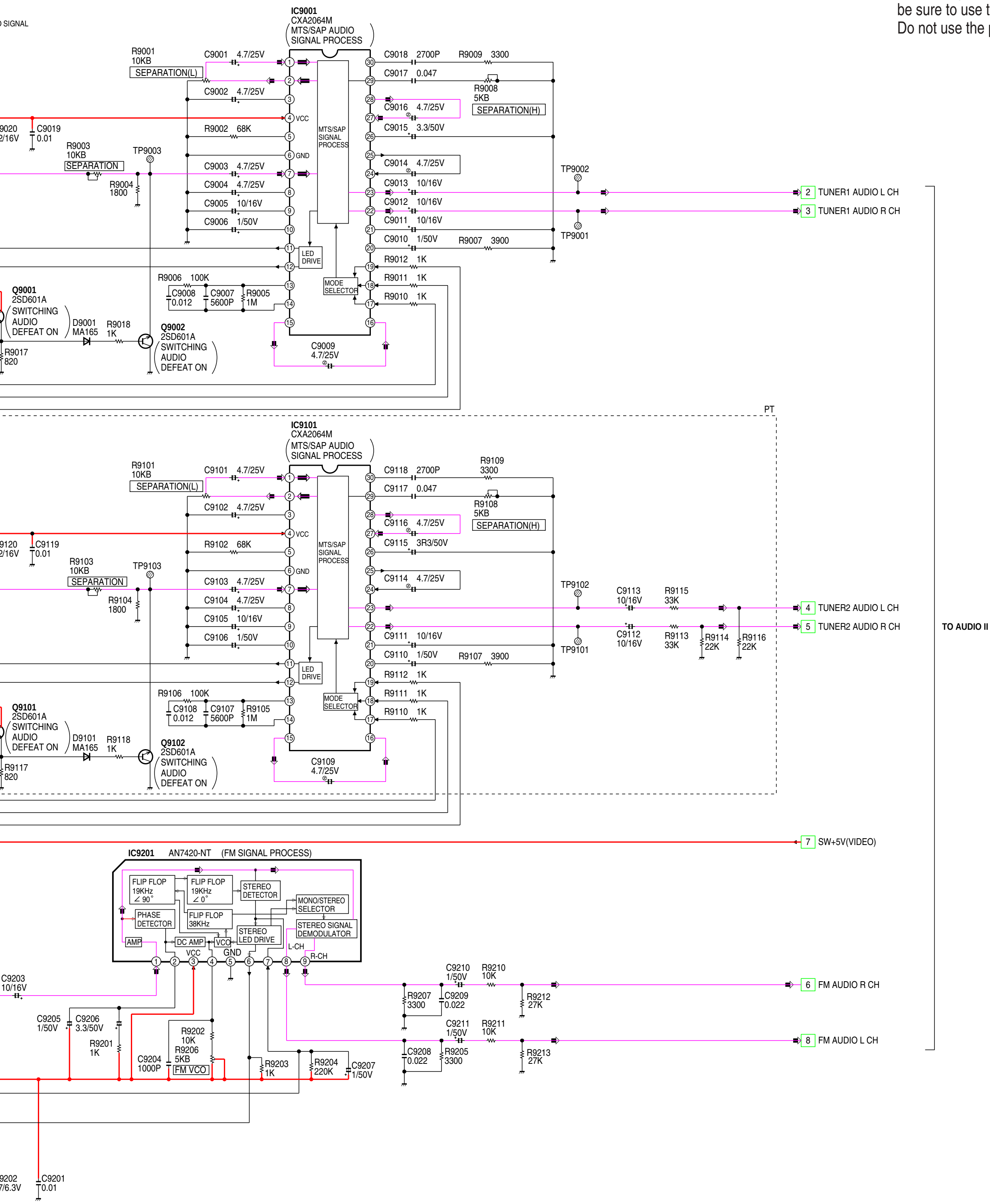




NOTE:
PARTS ENCLOSED IN DASHED LINES MARKED "PT" ARE NOT USED.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

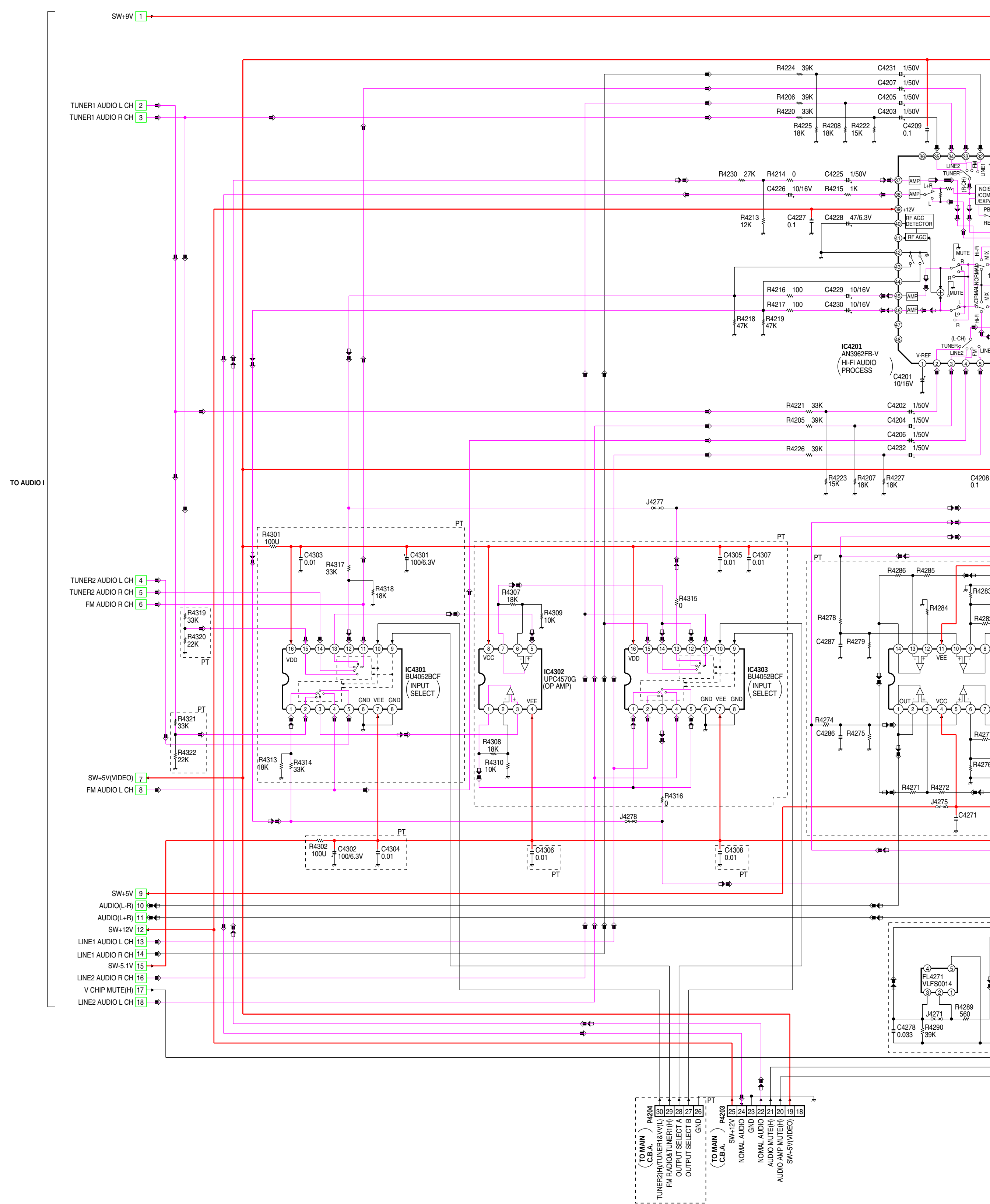
NOTE: For placing a purchase order of the parts, be sure to use the part number listed in the parts list. Do not use the part number on this diagram.



LINK TO VOLTAGE CHART

VJBS4036
PV-DF2702/PV-DF2702-K
AUDIO I SCHEMATIC DIAGRAM

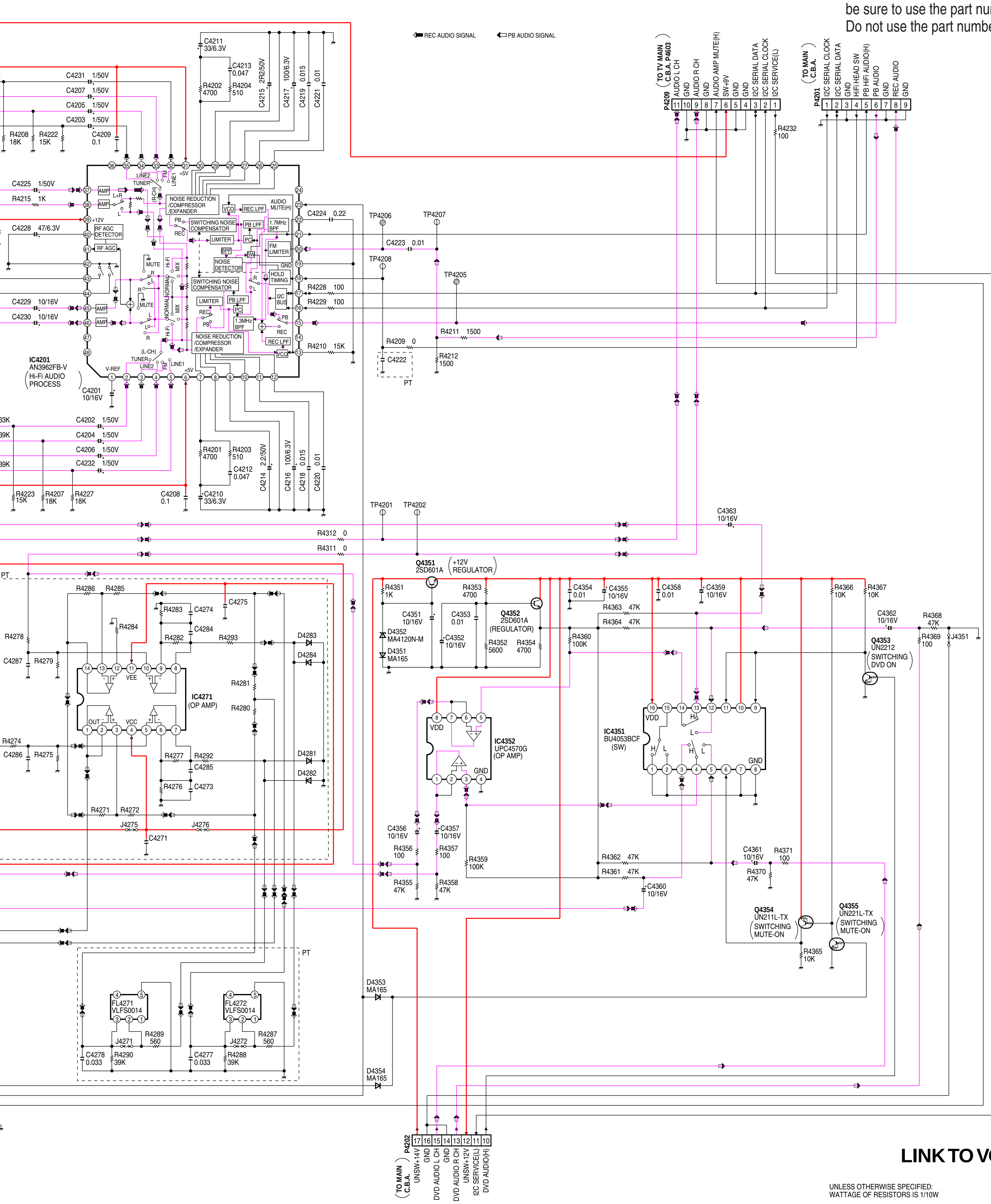
AUDIO II SCHEMATIC DIAGRAM



NOTE:
PARTS ENCLOSED IN DASHED LINES MARKED "PT" ARE NOT USED.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE: For placing a purchase order of the parts, be sure to use the part number listed in the parts list. Do not use the part number on this diagram.



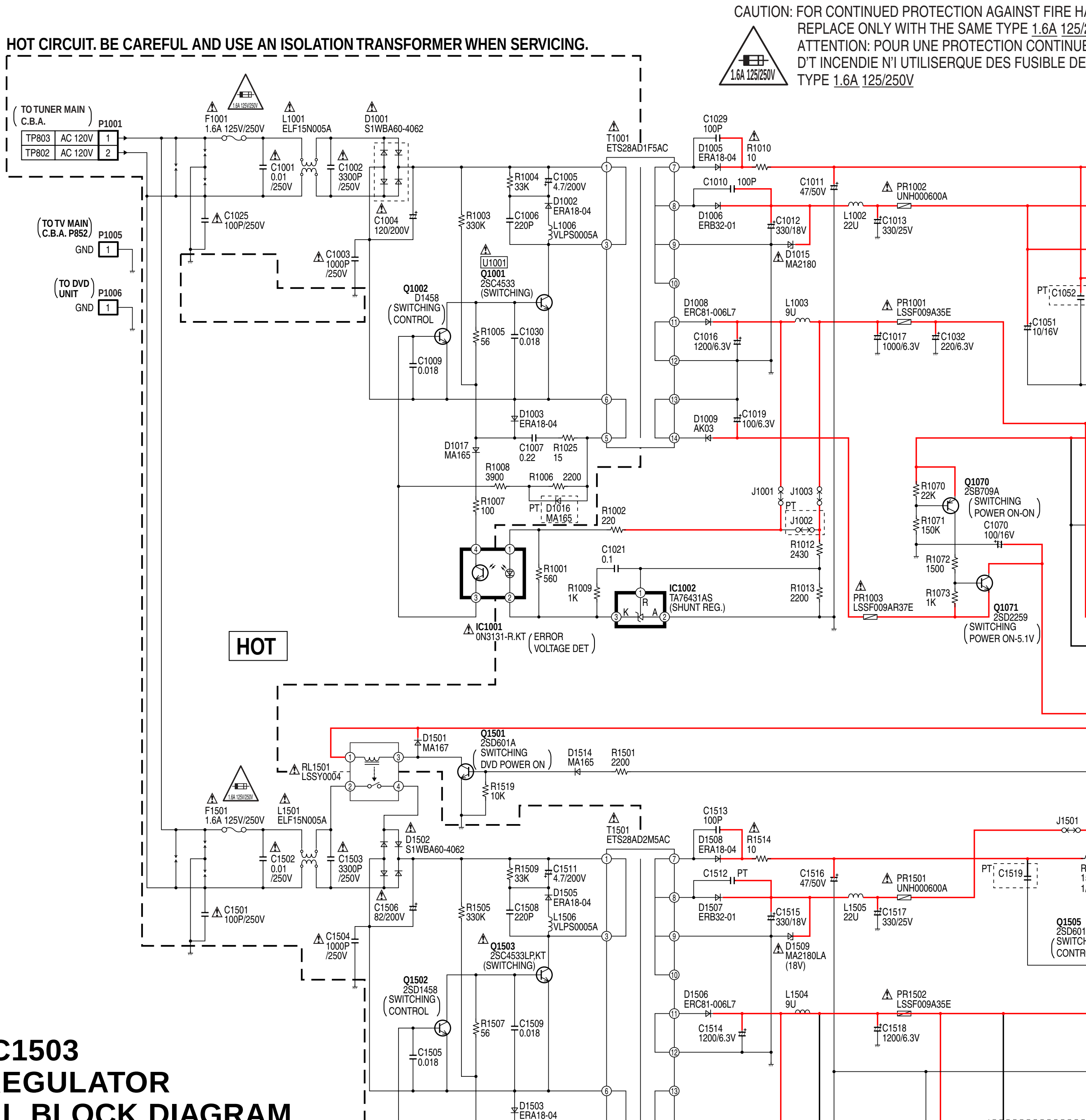
LINK TO VOLTAGE CHART

UNLESS OTHERWISE SPECIFIED:
WATTAGE OF RESISTORS IS 1/10W

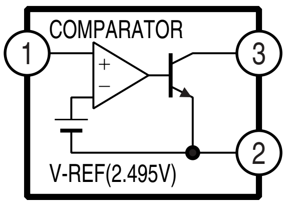
VJBS4036
PV-DF2702/PV-DF2702-K
AUDIO II SCHEMATIC DIAGRAM

8.4. POWER SUPPLY SCHEMATIC DIAGRAM

POWER SUPPLY SCHEMATIC DIAGRAM



IC1002, IC1503 SHUNT REGULATOR IC- DETAIL BLOCK DIAGRAM



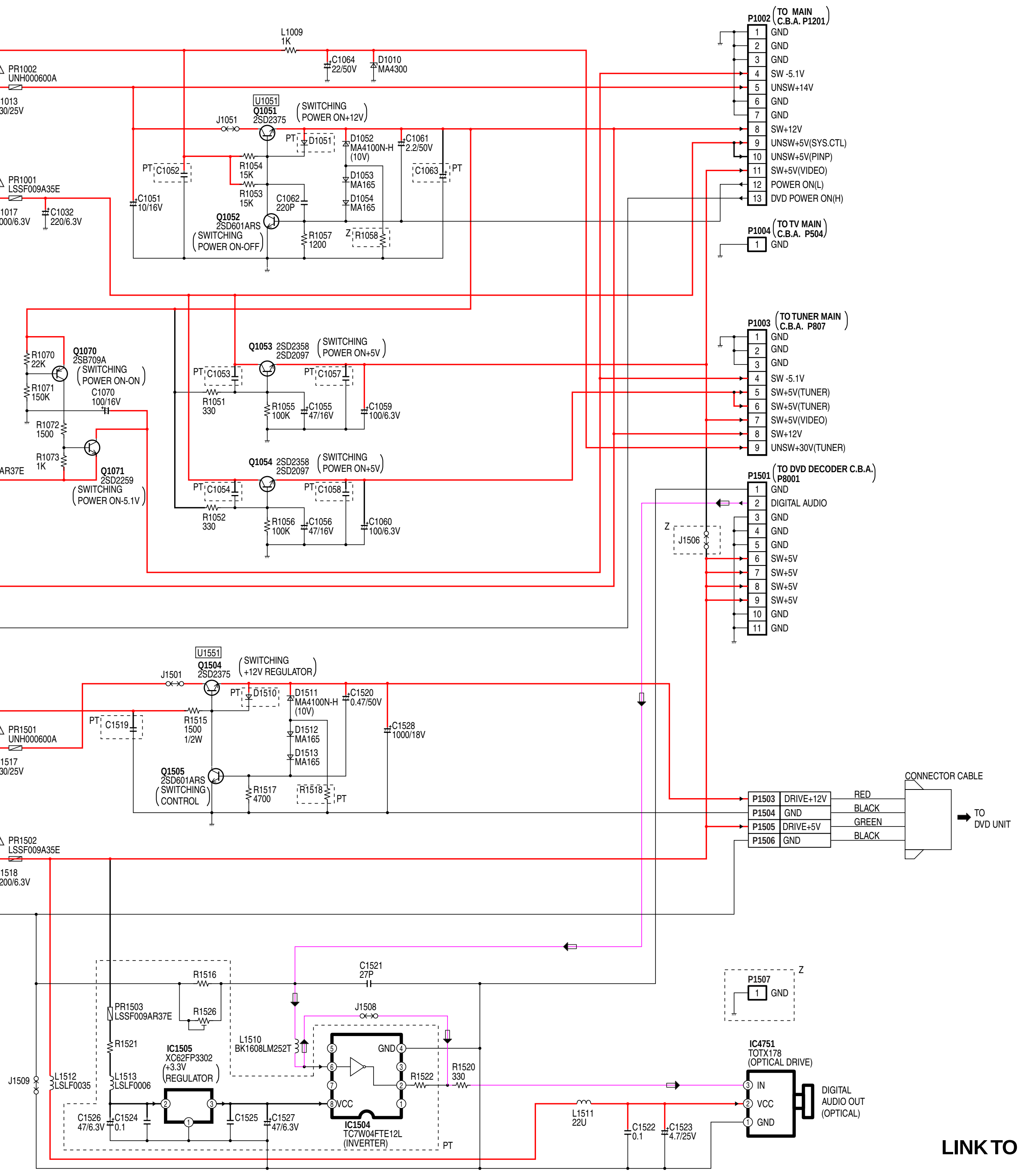
NOTE:
PARTS ENCLOSED IN DASHED LINES MARKED "PT" ARE NOT USED.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE: For placing a purchase order of the parts, be sure to use the part number listed in the parts list. Do not use the part number on this diagram.

ED PROTECTION AGAINST FIRE HAZARD,
/ WITH THE SAME TYPE 1.6A 125/250V FUSE.
OUR UNE PROTECTION CONTINUE LES RISQUES
N'I UTILISERQUE DES FUSIBLE DE MÉME
250V

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

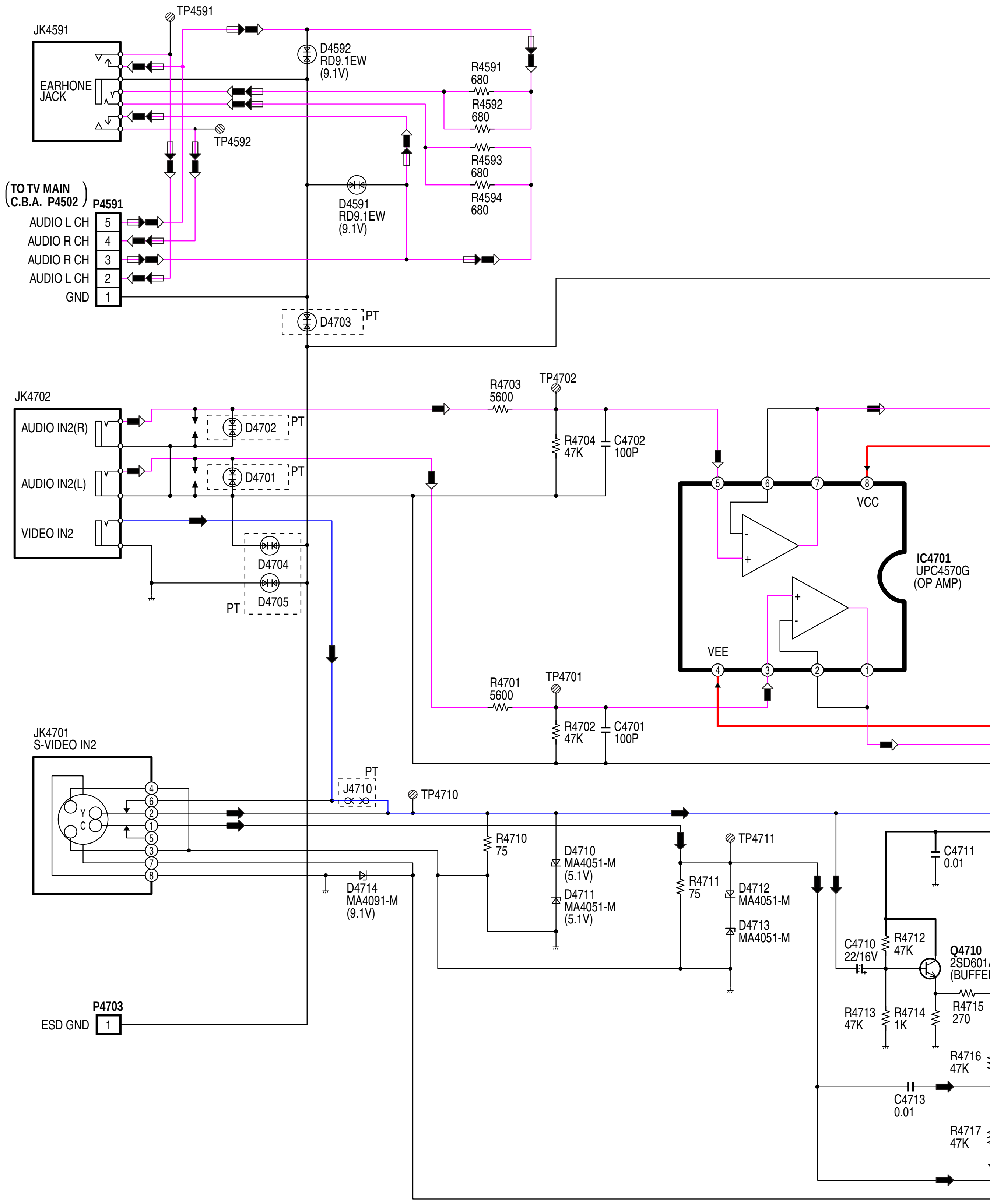


LINK TO VOLTAGE CHART

VJBS1020
PV-DF2702/PV-DF2702-K
POWER SUPPLY SCHEMATIC DIAGRAM

8.5. OPERATION SCHEMATIC DIAGRAM

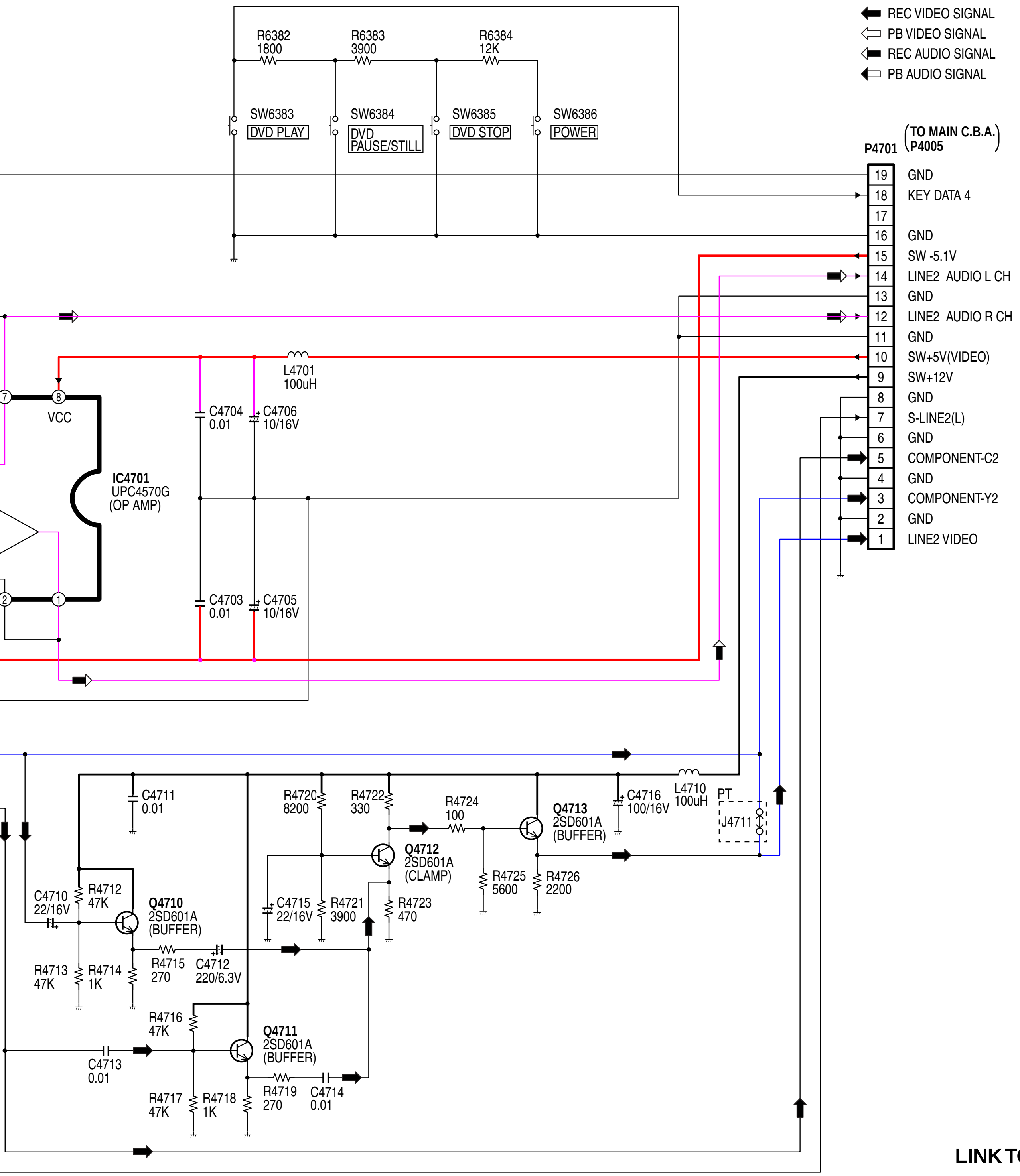
OPERATION SCHEMATIC DIAGRAM



NOTE:
PARTS ENCLOSED IN DASHED LINES MARKED "PT" ARE NOT USED.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE: For placing a purchase order of the parts, be sure to use the part number listed in the parts list. Do not use the part number on this diagram.



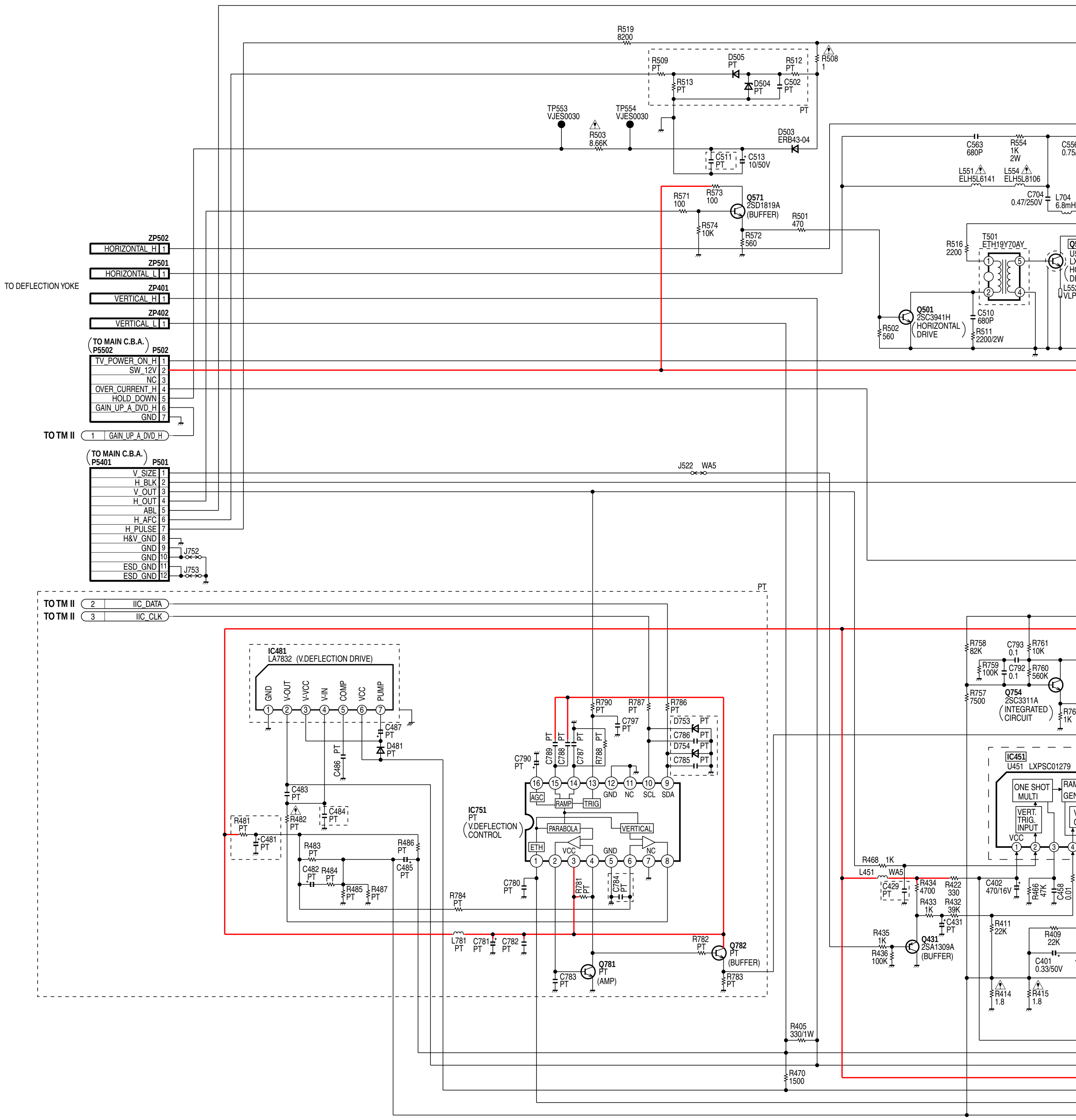
LINK TO VOLTAGE CHART

VJBS8060
PV-DF2702/PV-DF2702-K
OPERATION SCHEMATIC DIAGRAM

8.6. TV MAIN SCHEMATIC DIAGRAMS

TV MAIN I SCHEMATIC DIAGRAM

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠
SPECIAL CHARACTERISTICS IMPORTANT FO
WHEN REPLACING ANY OF THESE COMPONI
USE ONLY THE SPECIFIED PARTS.

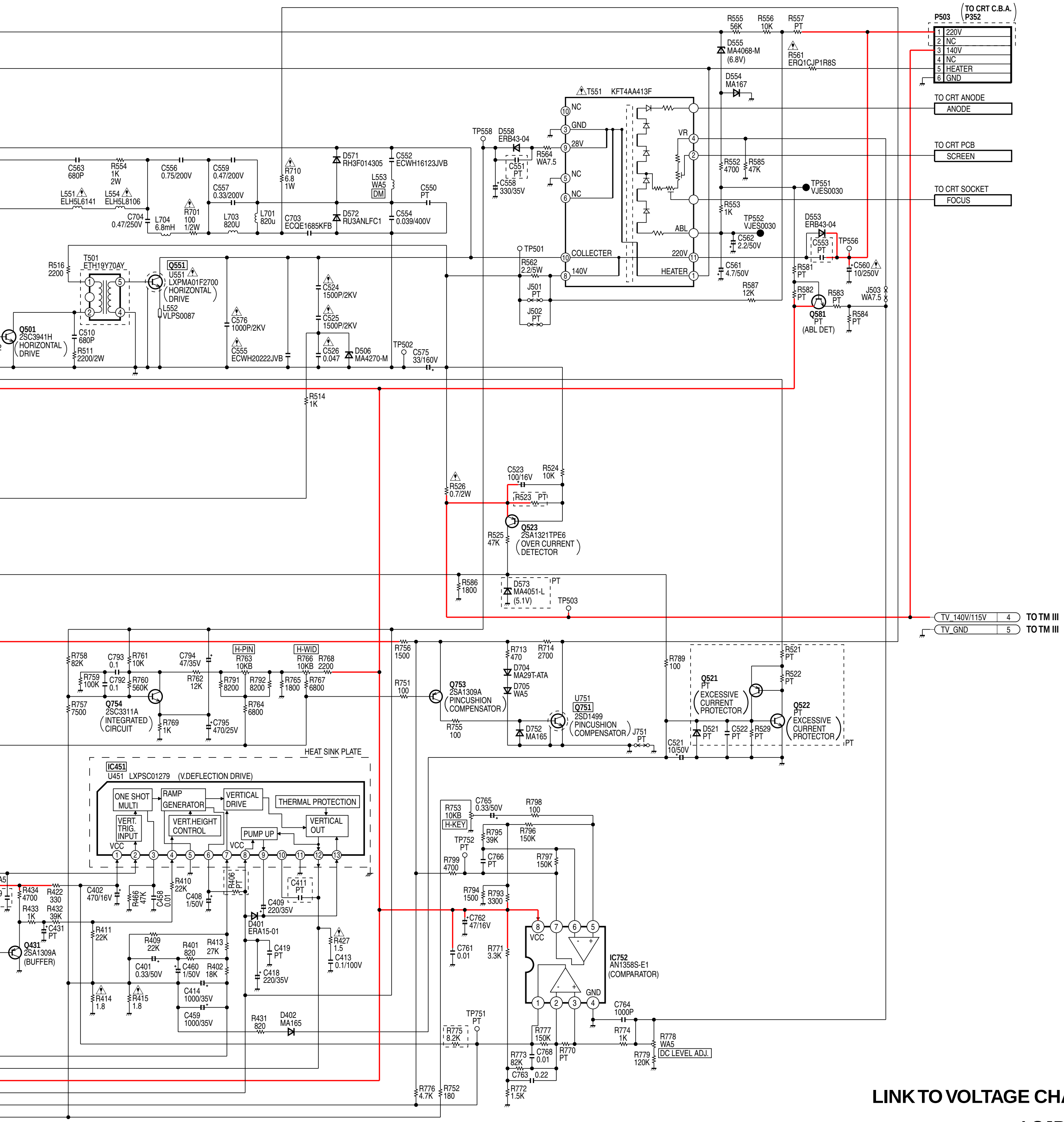


T SAFETY NOTICE:
NTS IDENTIFIED BY THE SIGN ⚠ HAVE
HARACTERISTICS IMPORTANT FOR SAFETY.
LACING ANY OF THESE COMPONENTS,
THE SPECIFIED PARTS.

NOTE:
PARTS ENCLOSED IN DASHED LINES MARKED "PT" ARE NOT USED.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

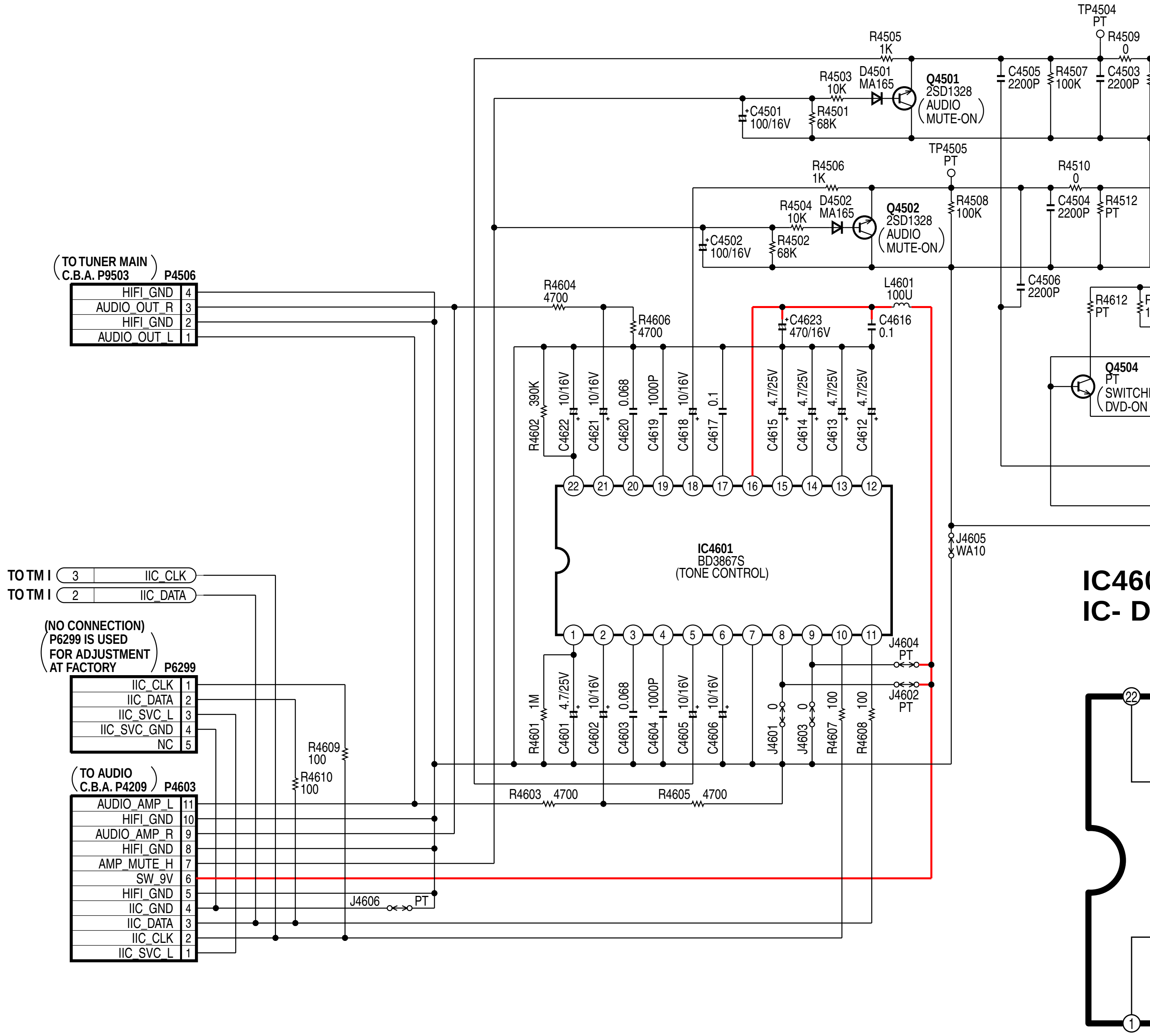
NOTE: For placing a purchase order of the parts, be sure to use the part number listed in the parts list. Do not use the part number on this diagram.



LINK TO VOLTAGE CHART

LSJB2036
PV-DF2702/PV-DF2702-K
TV MAIN I SCHEMATIC DIAGRAM

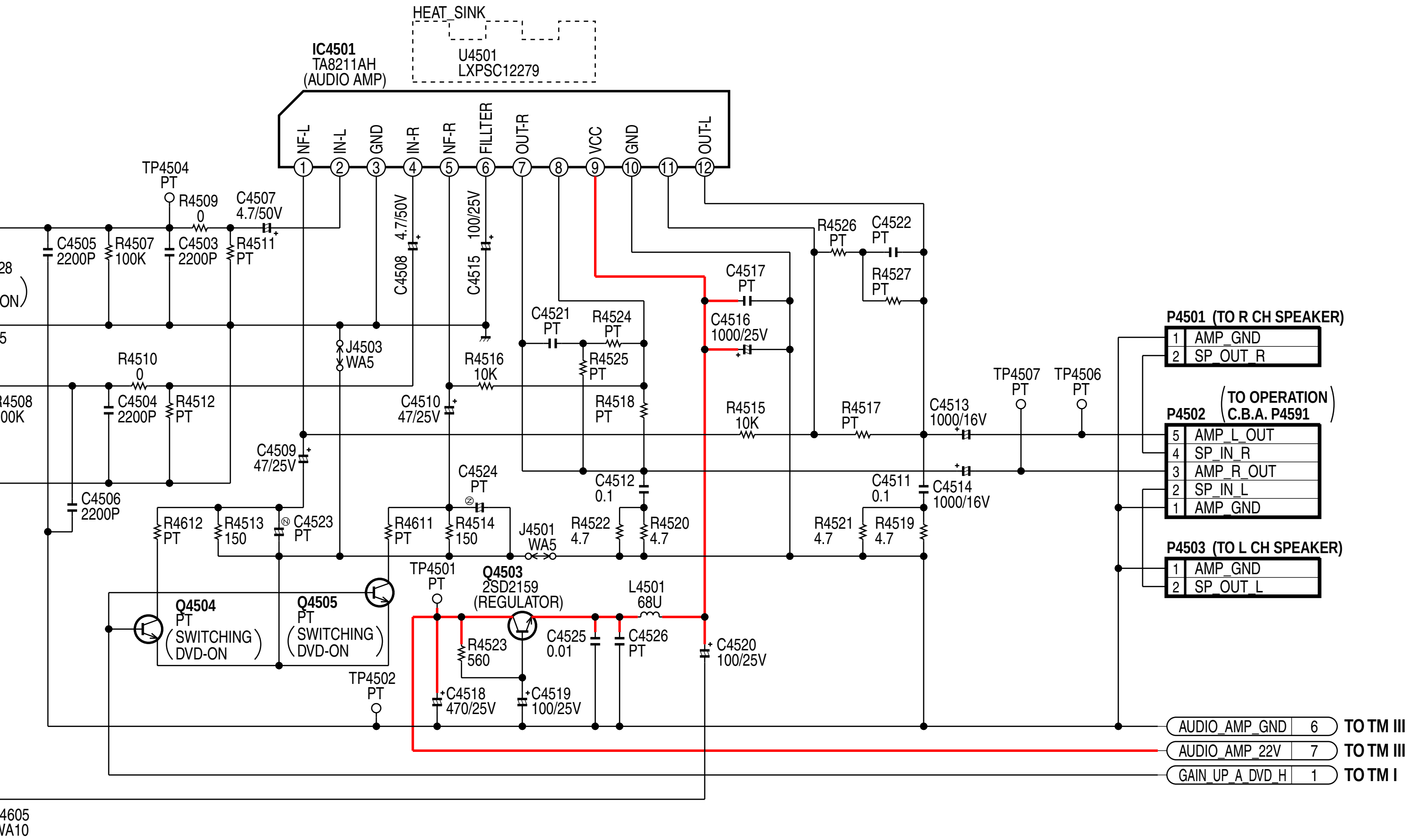
TV MAIN II SCHEMATIC DIAGRAM



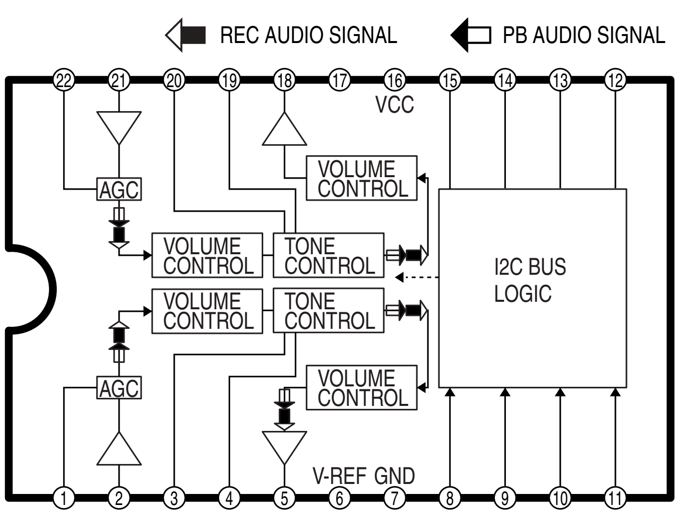
NOTE:
PARTS ENCLOSED IN DASHED LINES MARKED "PT" ARE NOT USED.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE: For placing a purchase order of the parts, be sure to use the part number listed in the parts list. Do not use the part number on this diagram.



IC4601 TONE CONTROL IC- DETAIL BLOCK DIAGRAM



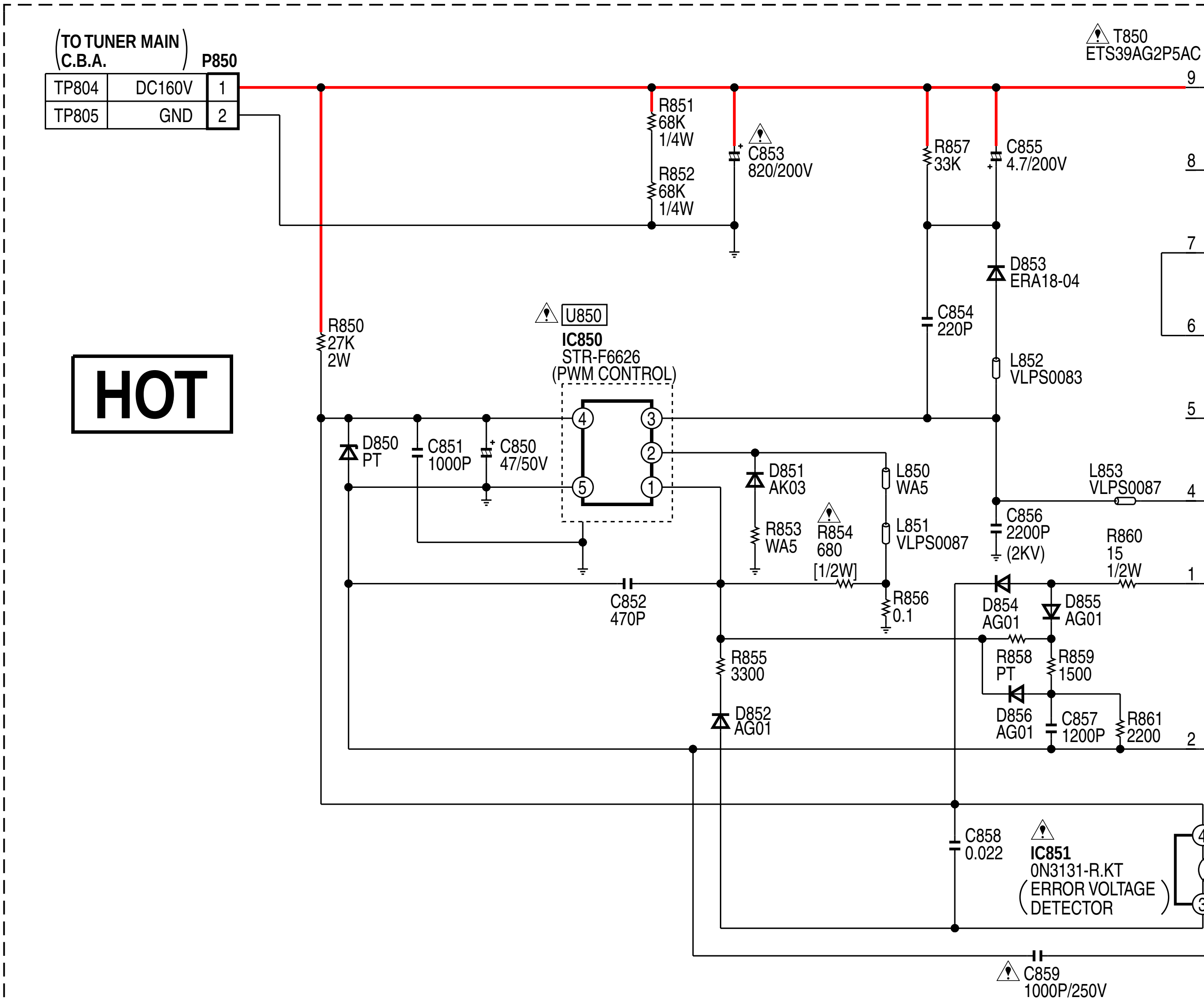
LINK TO VOLTAGE CHART

LSJB2036
PV-DF2702/PV-DF2702-K
TV MAIN II SCHEMATIC DIAGRAM

TV MAIN III SCHEMATIC DIAGRAM

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE
SPECIAL CHARACTERISTICS IMPORTANT FOR SAFE
WHEN REPLACING ANY OF THESE COMPONENTS,
USE ONLY THE SPECIFIED PARTS.

HOT CIRCUIT. BE CAREFUL AND USE AN ISOLATION TRANSFORMER WHEN SERVICING.



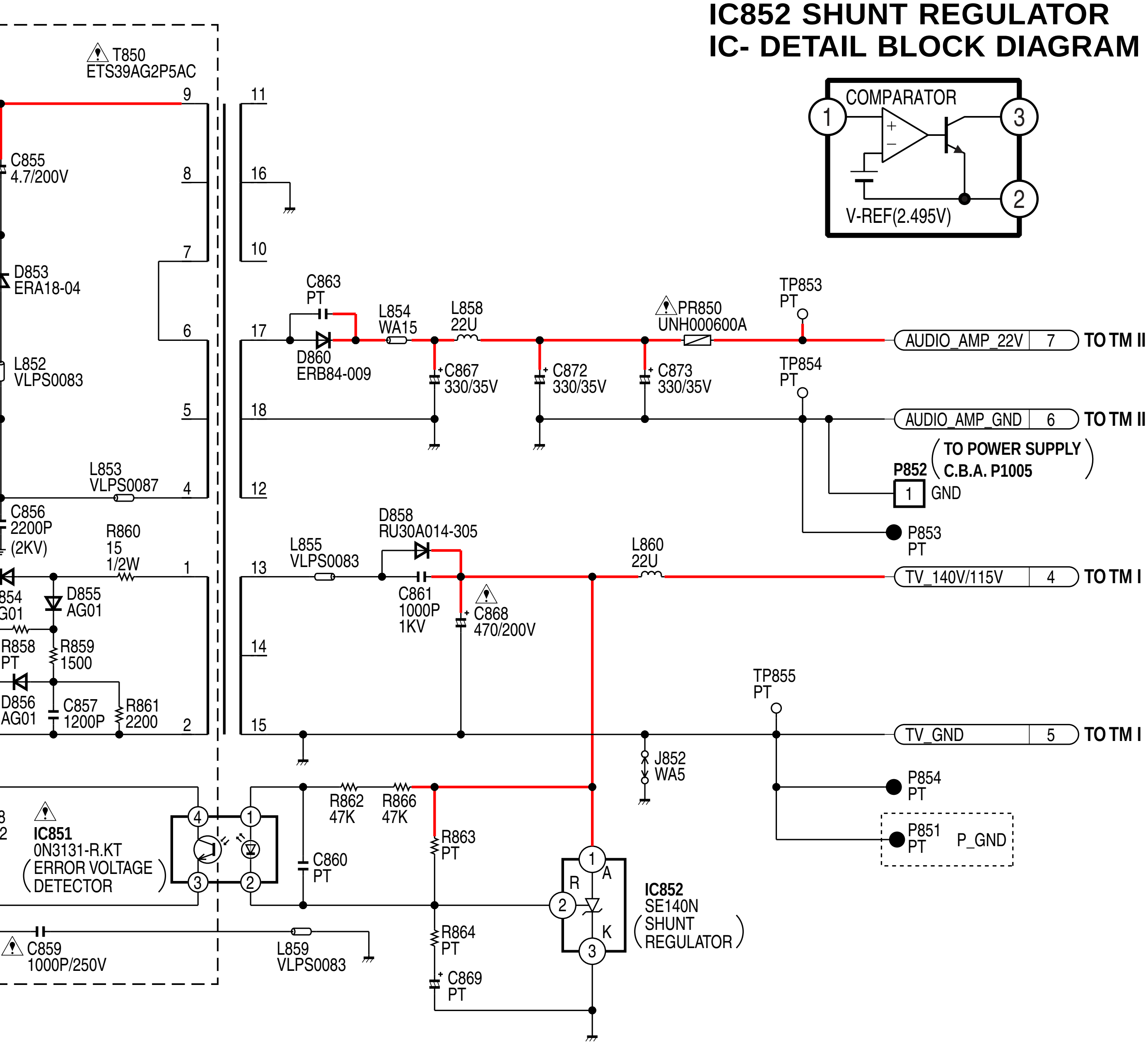
TY NOTICE:
ENTIFIED BY THE SIGN ⚠ HAVE
TERISTICS IMPORTANT FOR SAFETY.
G ANY OF THESE COMPONENTS,
ECIFIED PARTS.

NOTE:
PARTS ENCLOSED IN DASHED LINES MARKED "PT" ARE NOT USED.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

IC852 SHUNT REGULATOR
IC- DETAIL BLOCK DIAGRAM



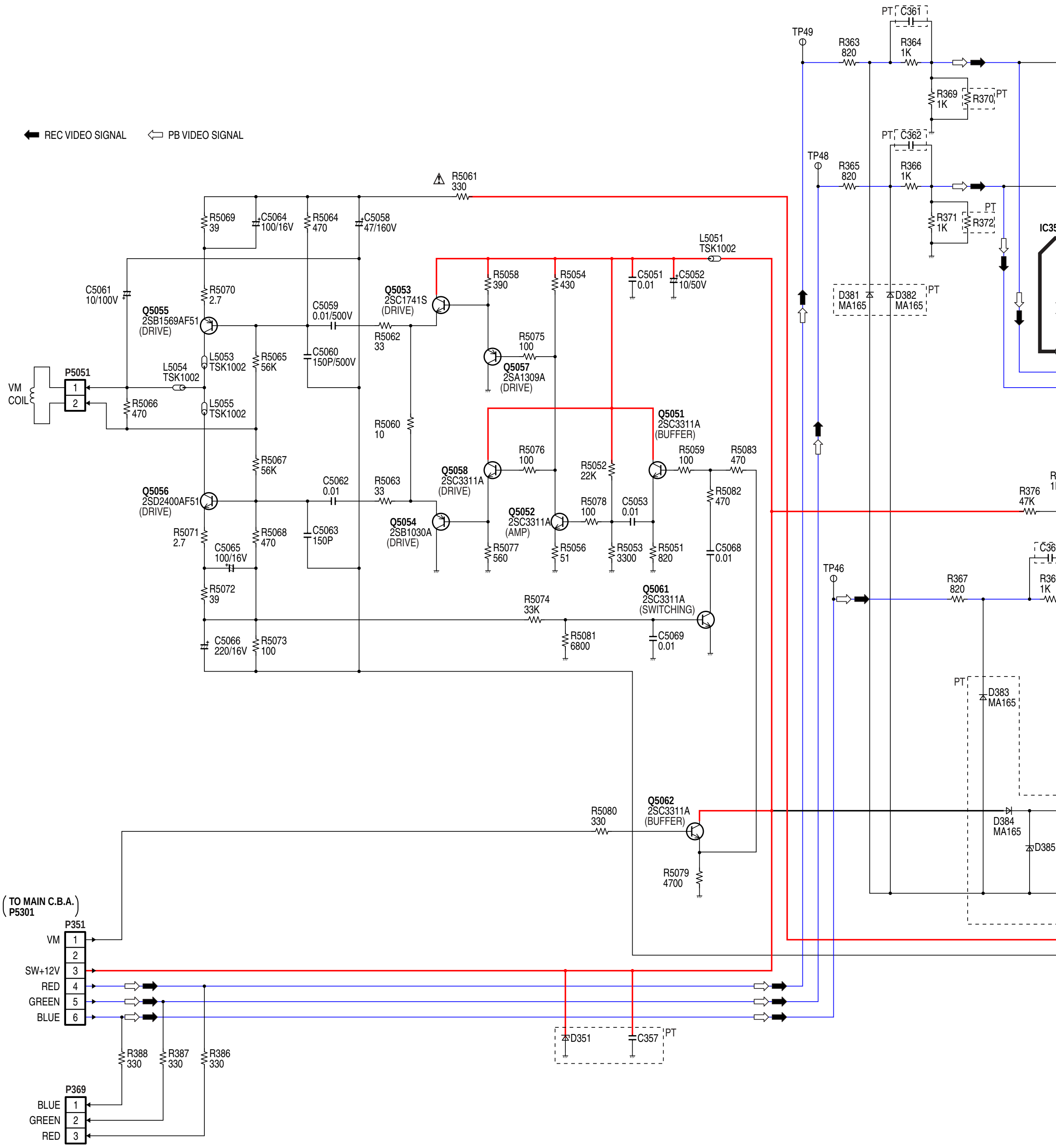
LINK TO VOLTAGE CHART

LSJB2036
PV-DF2702/PV-DF2702-K
TV MAIN III SCHEMATIC DIAGRAM

8.7. CRT SCHEMATIC DIAGRAM

CRT SCHEMATIC DIAGRAM

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ ... SPECIAL CHARACTERISTICS IMPORTANT F... WHEN REPLACING ANY OF THESE COMPO... USE ONLY THE SPECIFIED PARTS.

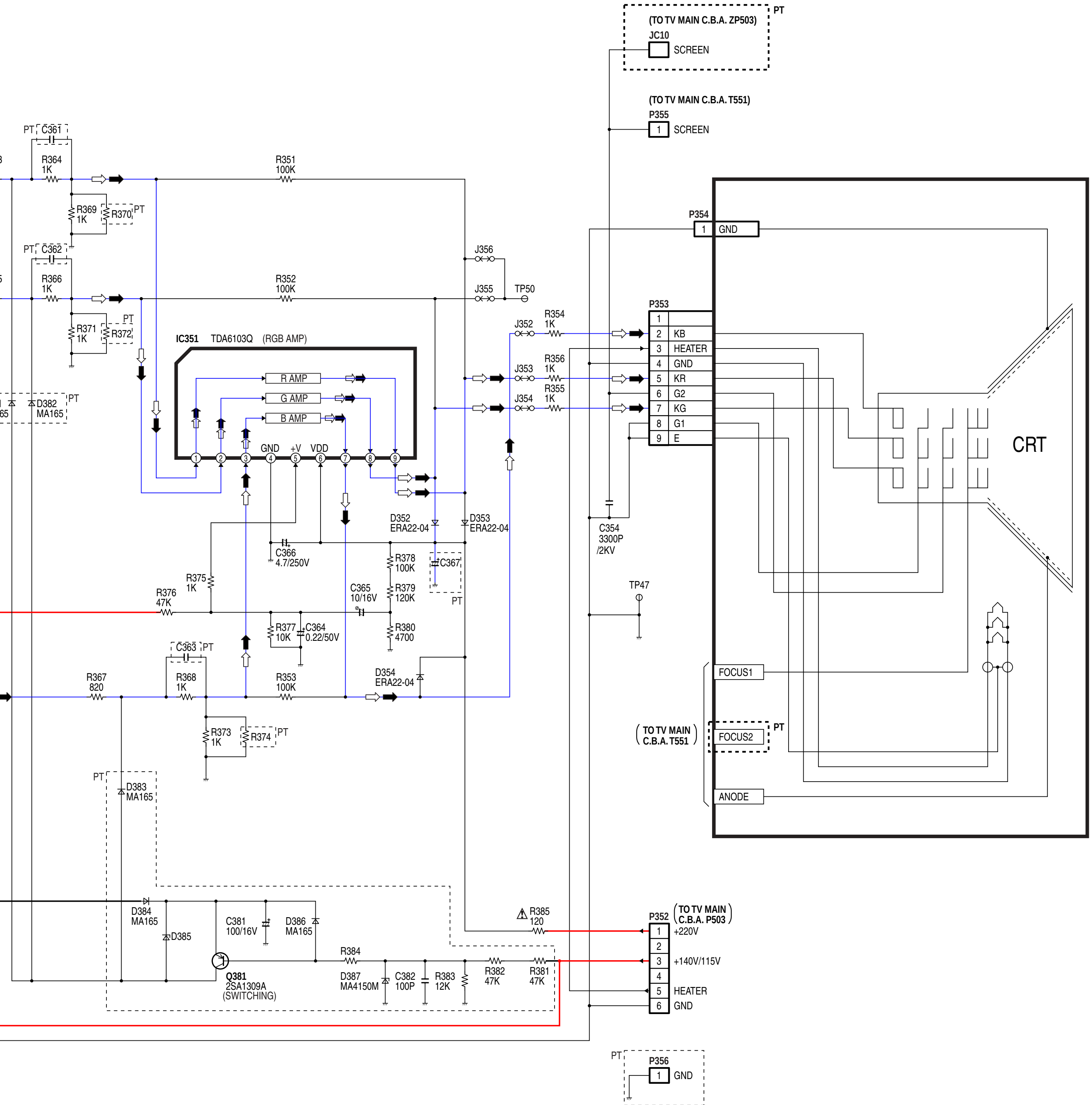


NT SAFETY NOTICE:
ENTS IDENTIFIED BY THE SIGN ⚠ HAVE
CHARACTERISTICS IMPORTANT FOR SAFETY.
PLACING ANY OF THESE COMPONENTS,
THE SPECIFIED PARTS.

NOTE:
PARTS ENCLOSED IN DASHED LINES MARKED "PT" ARE NOT USED.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

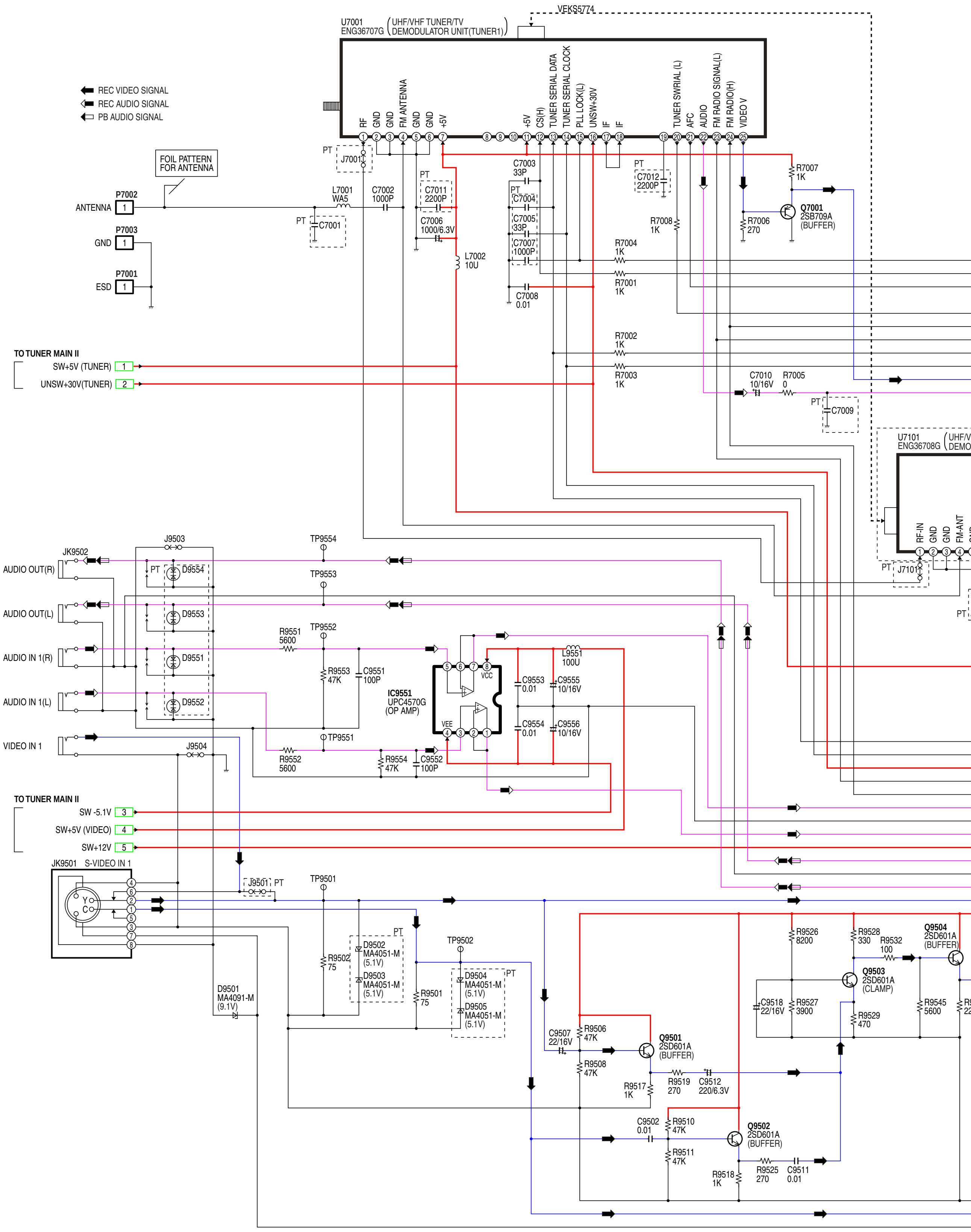


LINK TO VOLTAGE CHART

LRP63021
PV-DF2702/PV-DF2702-K
CRT SCHEMATIC DIAGRAM

8.8. TUNER MAIN SCHEMATIC DIAGRAMS

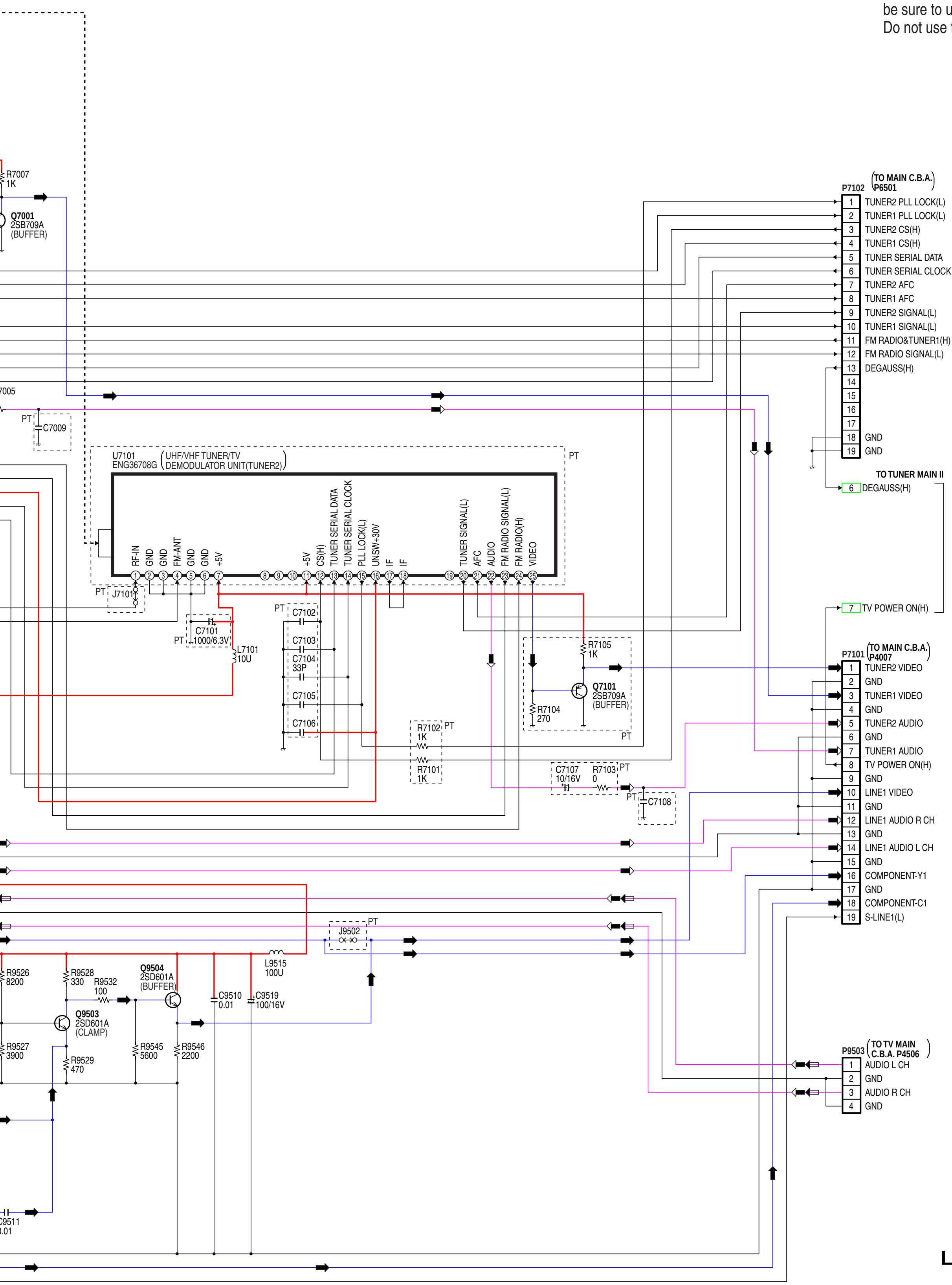
TUNER MAIN I SCHEMATIC DIAGRAM



NOTE:
PARTS ENCLOSED IN DASHED LINES MARKED "PT" ARE NOT USED.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

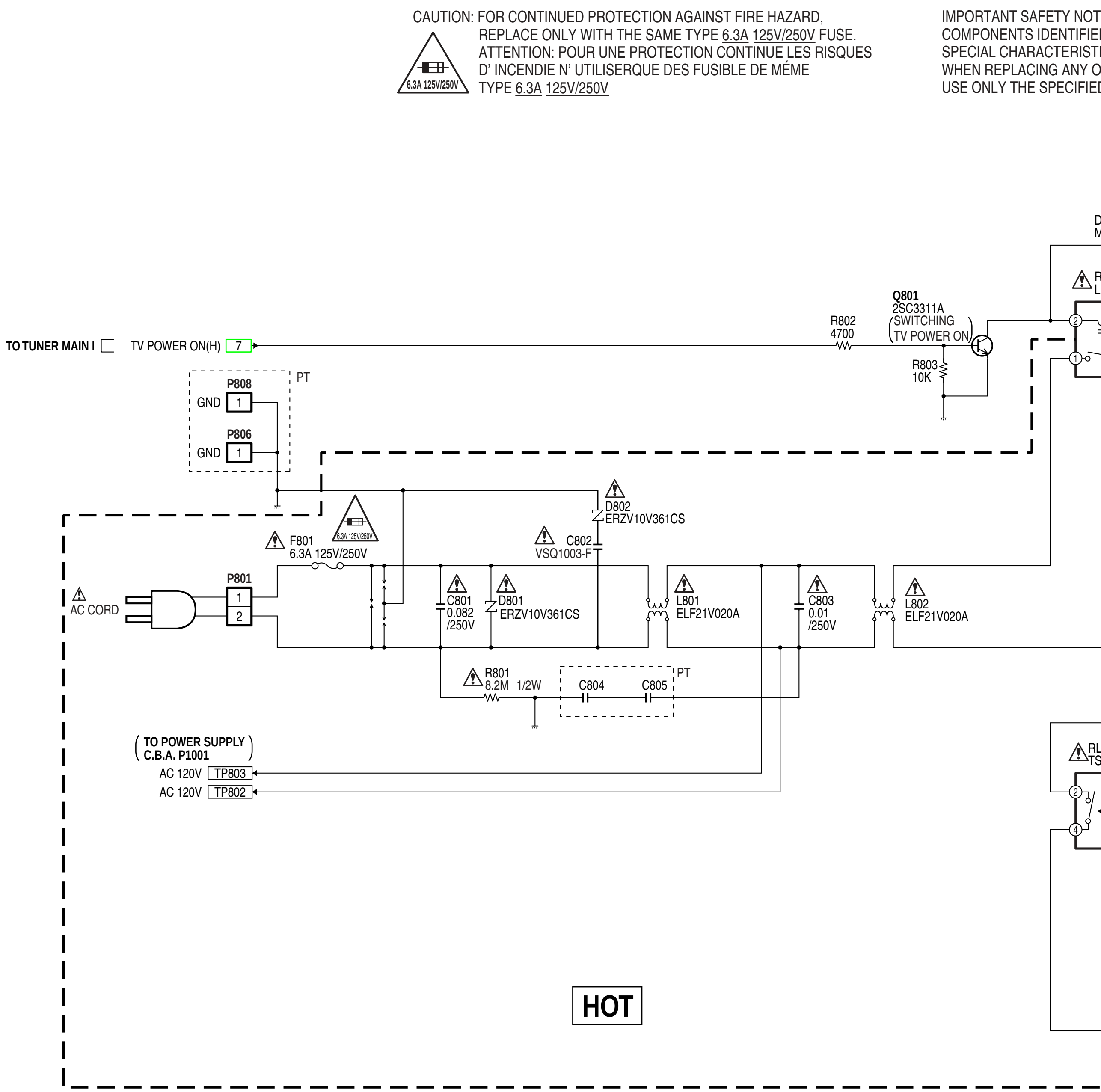
NOTE: For placing a purchase order of the parts, be sure to use the part number listed in the parts list. Do not use the part number on this diagram.



LINK TO VOLTAGE CHART

VJBS9005
PV-DF2702/PV-DF2702-K
TUNER MAIN I SCHEMATIC DIAGRAM

TUNER MAIN II SCHEMATIC DIAGRAM



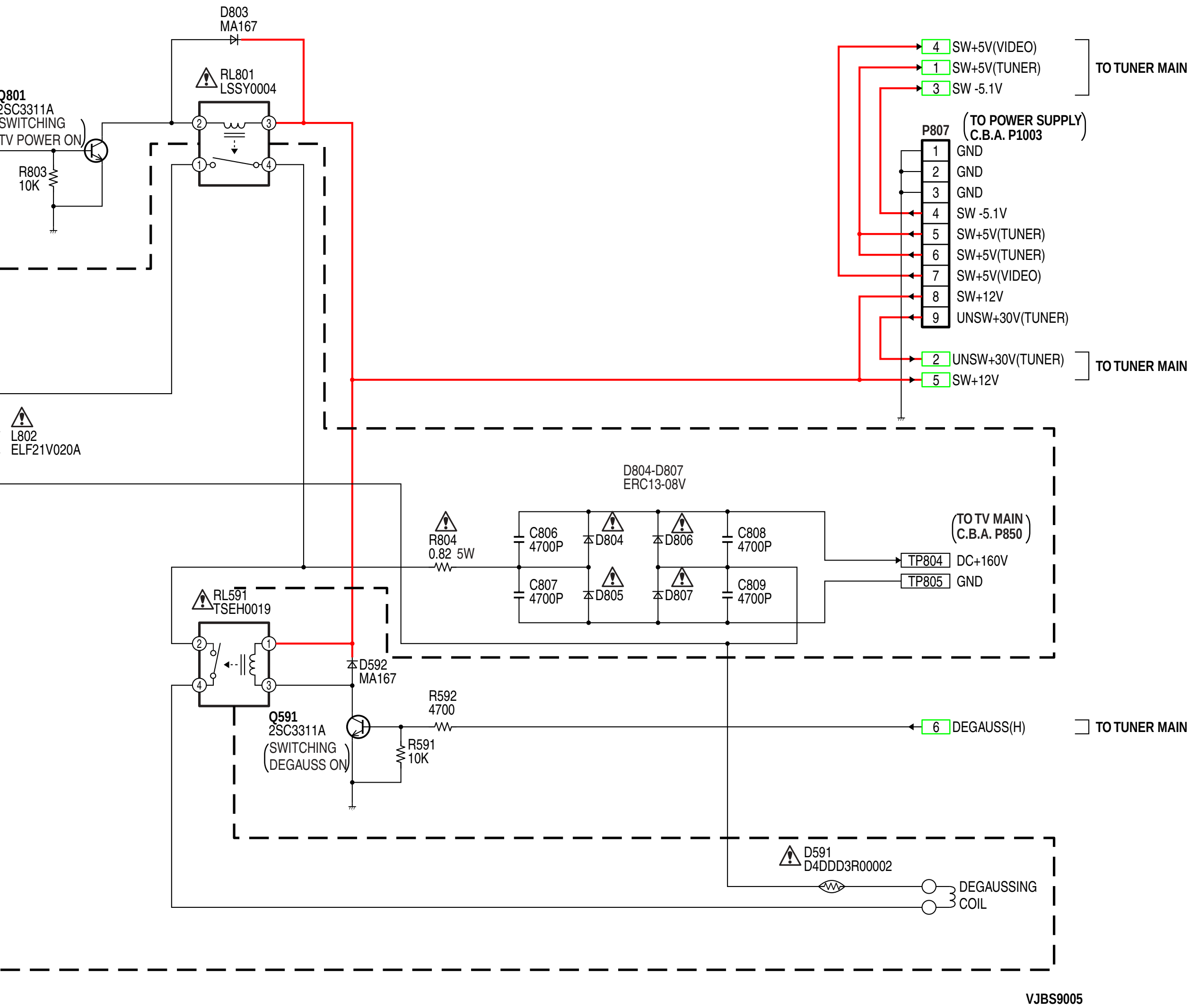
HOT CIRCUIT. BE CAREFUL AND USE AN ISOLATION TRANSFORMER WHEN SERVICING.

NOTE:
PARTS ENCLOSED IN DASHED LINES MARKED "PT" ARE NOT USED.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE: For placing a purchase order of the parts, be sure to use the part number listed in the parts list. Do not use the part number on this diagram.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

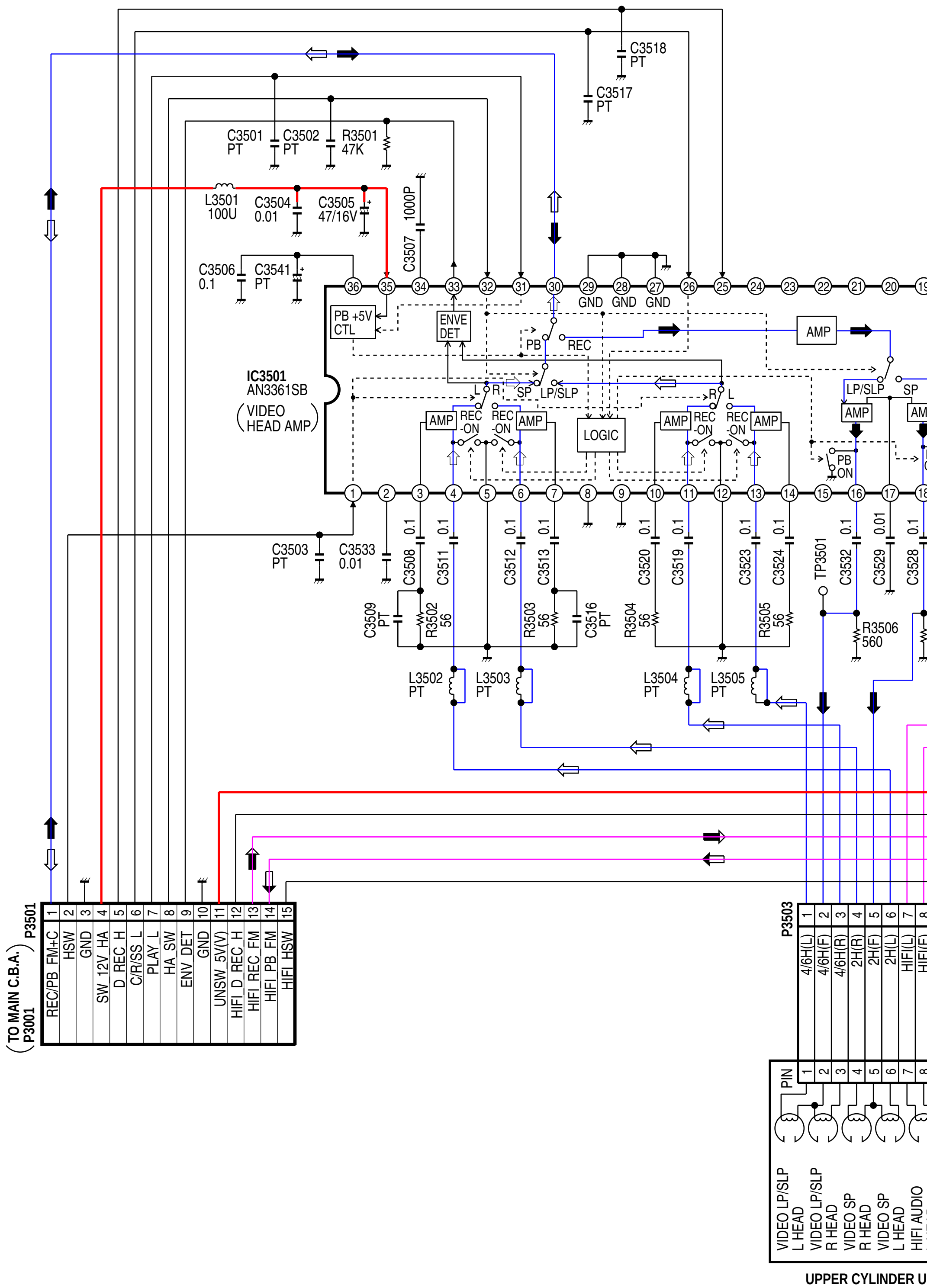


LINK TO VOLTAGE CHART

VJBS9005
PV-DF2702/PV-DF2702-K
TUNER MAIN II SCHEMATIC DIAGRAM

8.9. Hi-Fi AUDIO/VIDEO HEAD AMP SCHEMATIC DIAGRAM

Hi-Fi AUDIO/VIDEO HEAD AMP SCHEMATIC DIAGRAM

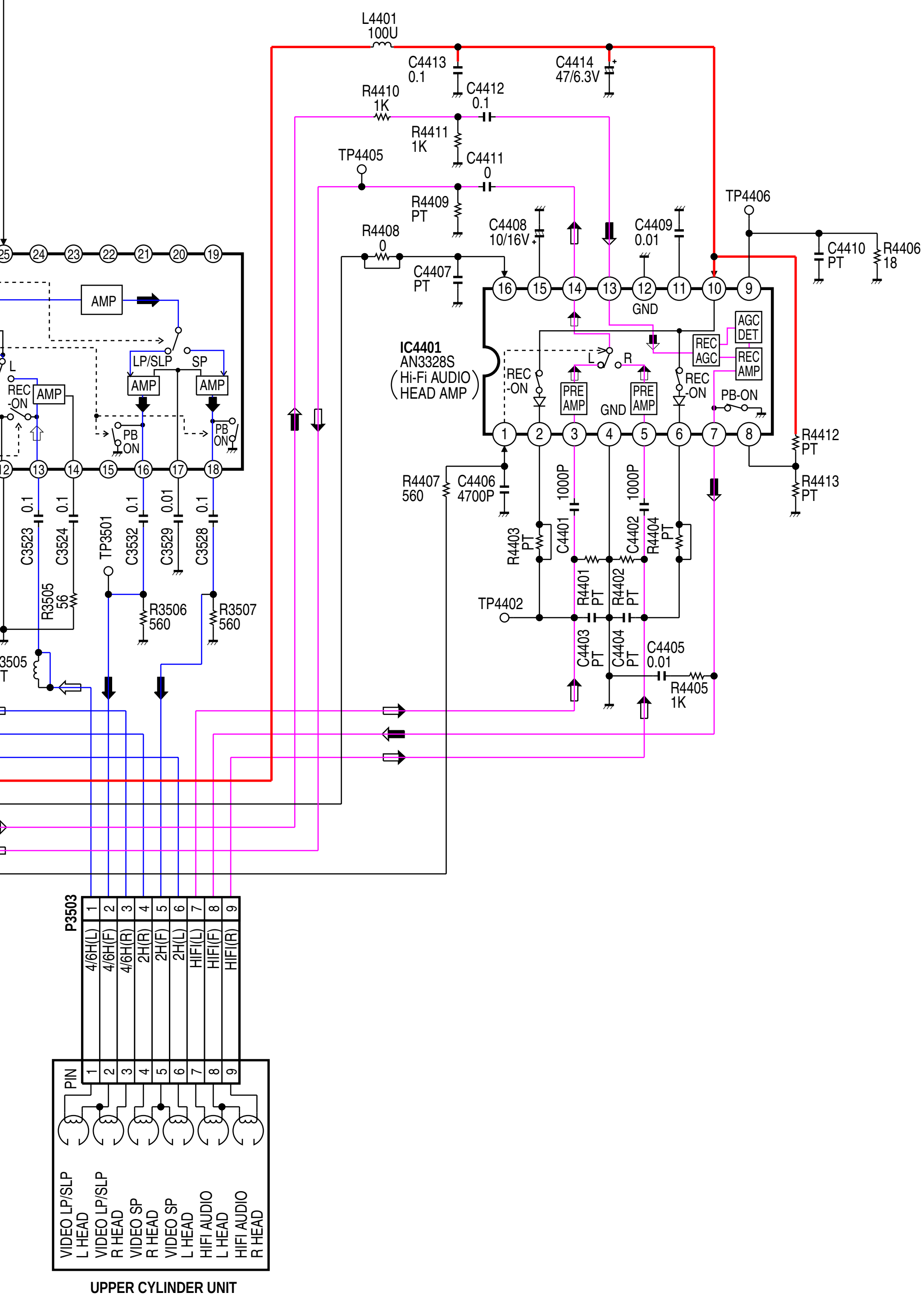


NOTE:
PARTS ENCLOSED IN DASHED LINES MARKED "PT" ARE NOT USED.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE: For placing a purchase order of the parts, be sure to use the part number listed in the parts list. Do not use the part number on this diagram.

REC VIDEO SIGNAL
REC AUDIO SIGNAL
PB VIDEO SIGNAL
PB AUDIO SIGNAL

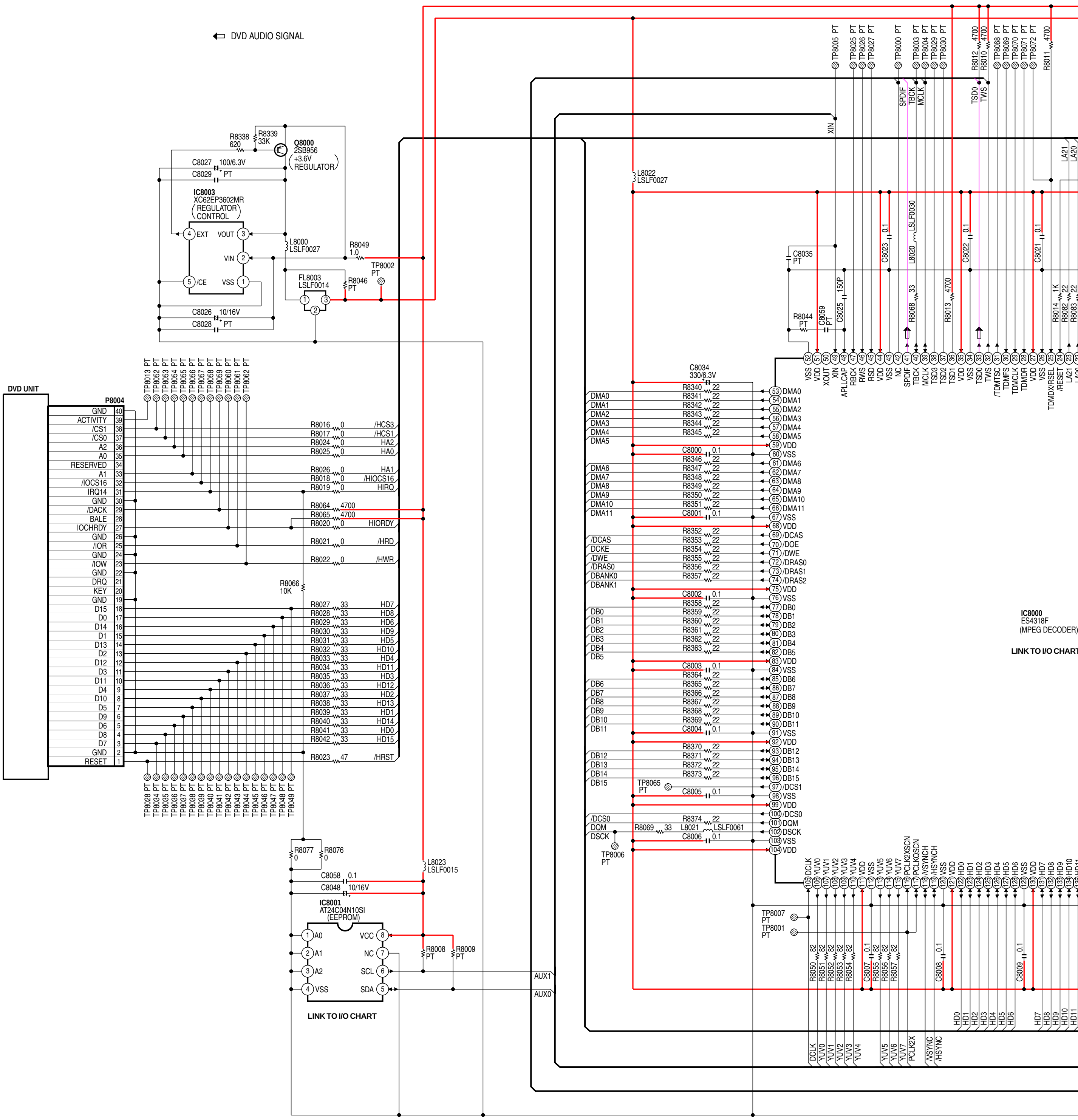


LINK TO VOLTAGE CHART

LSJB2010
PV-DF2702/PV-DF2702-K
Hi-Fi AUDIO/VIDEO HEAD AMP SCHEMATIC DIAGRAM

8.10. DVD DECODER SCHEMATIC DIAGRAMS

DVD DECODER I SCHEMATIC DIAGRAM

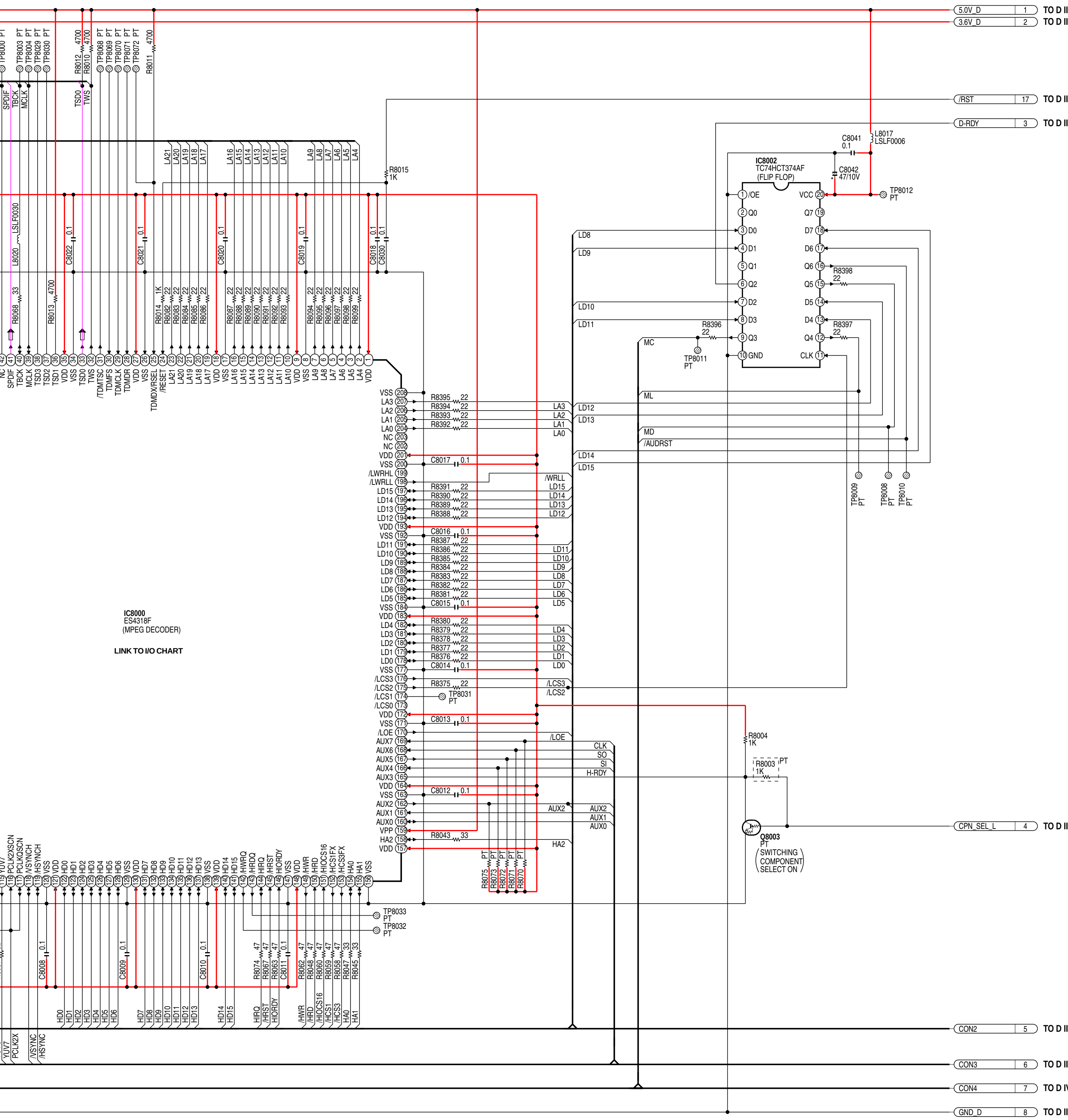


LINK TO VOLTAGE CHART

NOTE:
PARTS ENCLOSED IN DASHED LINES MARKED "PT" ARE NOT USED.

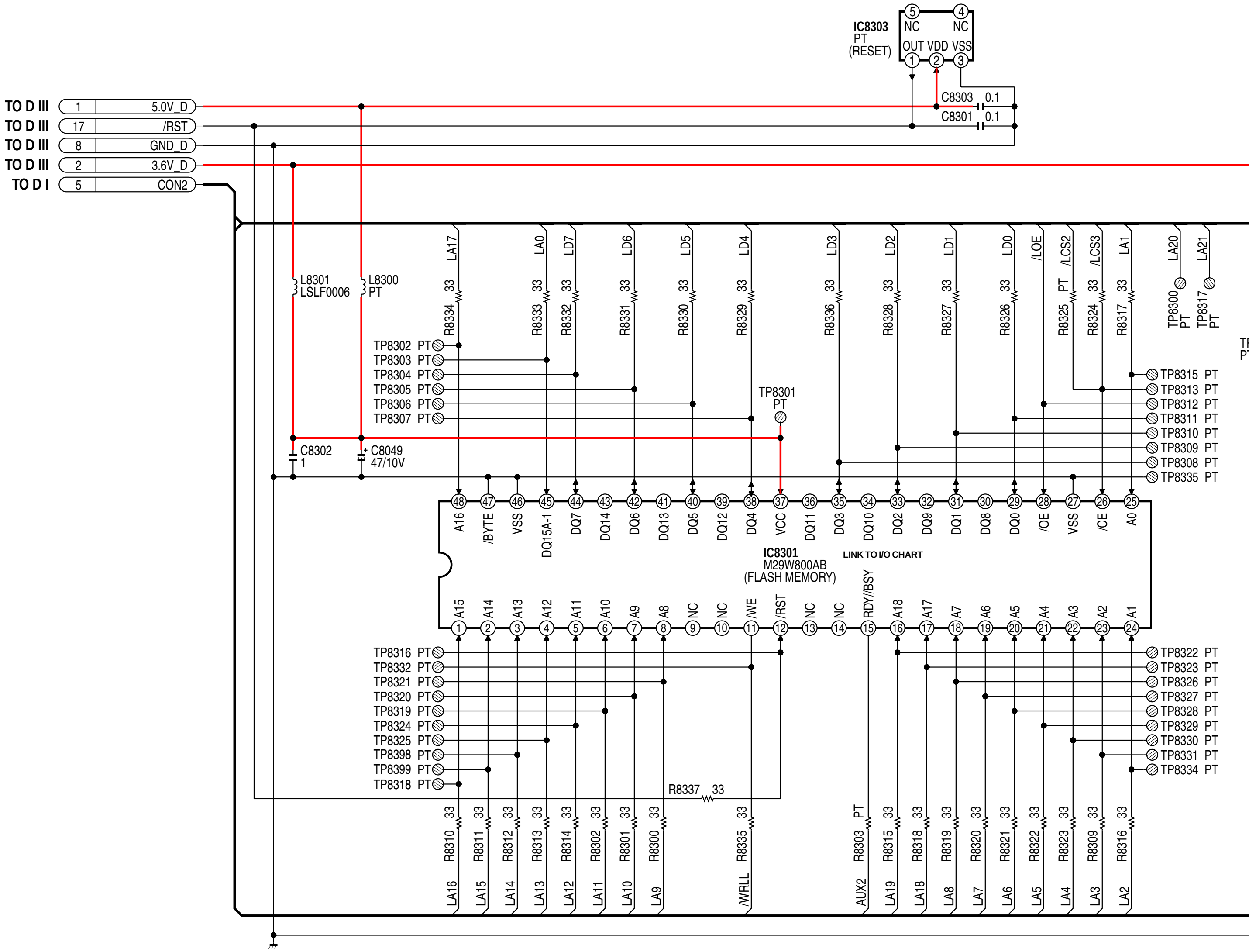
NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE: For placing a purchase order of the parts, be sure to use the part number listed in the parts list. Do not use the part number on this diagram.



LSJB2007
PV-DF2702/PV-DF2702-K
DVD DECODER I SCHEMATIC DIAGRAM

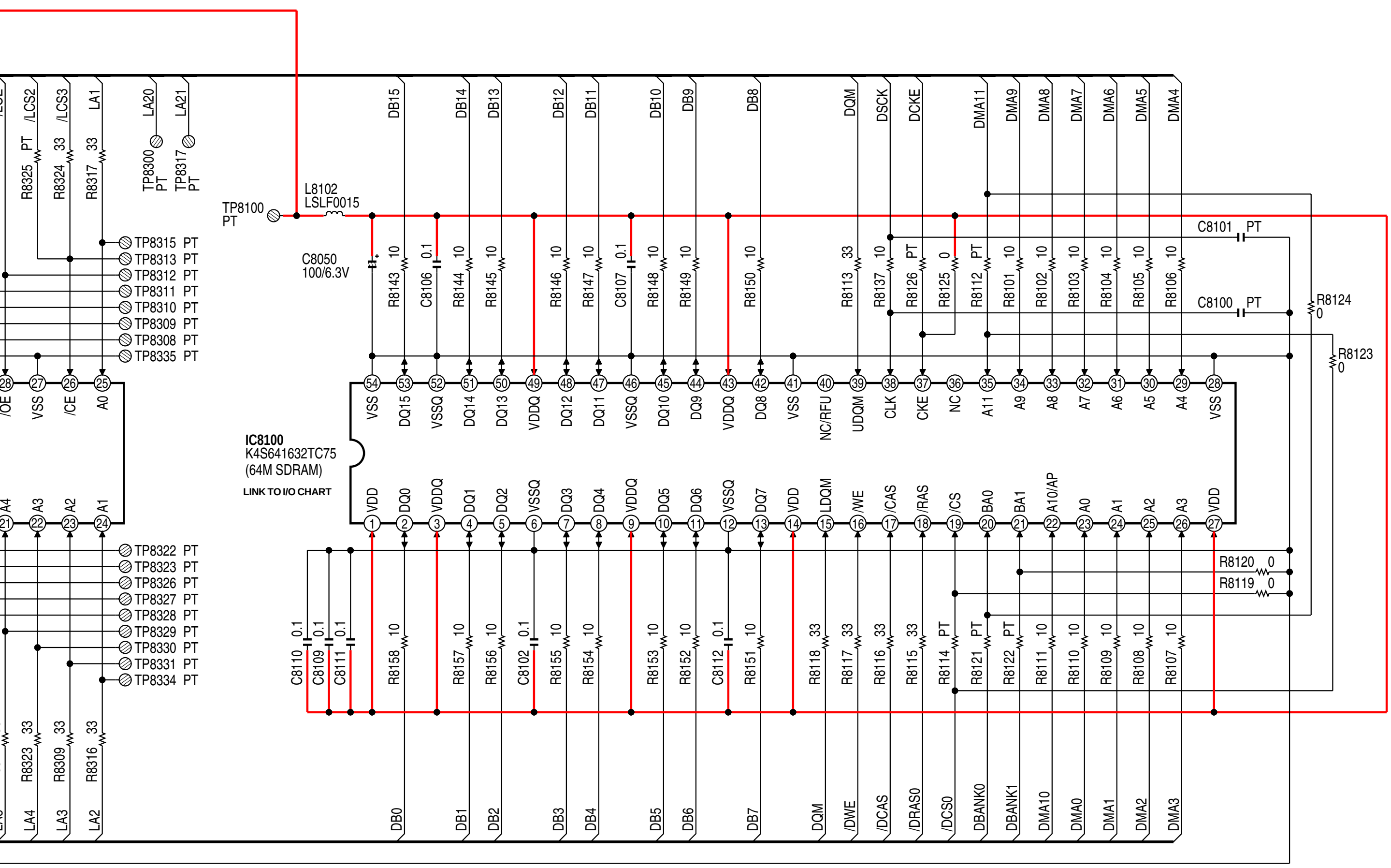
DVD DECODER II SCHEMATIC DIAGRAM



NOTE:
PARTS ENCLOSED IN DASHED LINES MARKED "PT" ARE NOT USED.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

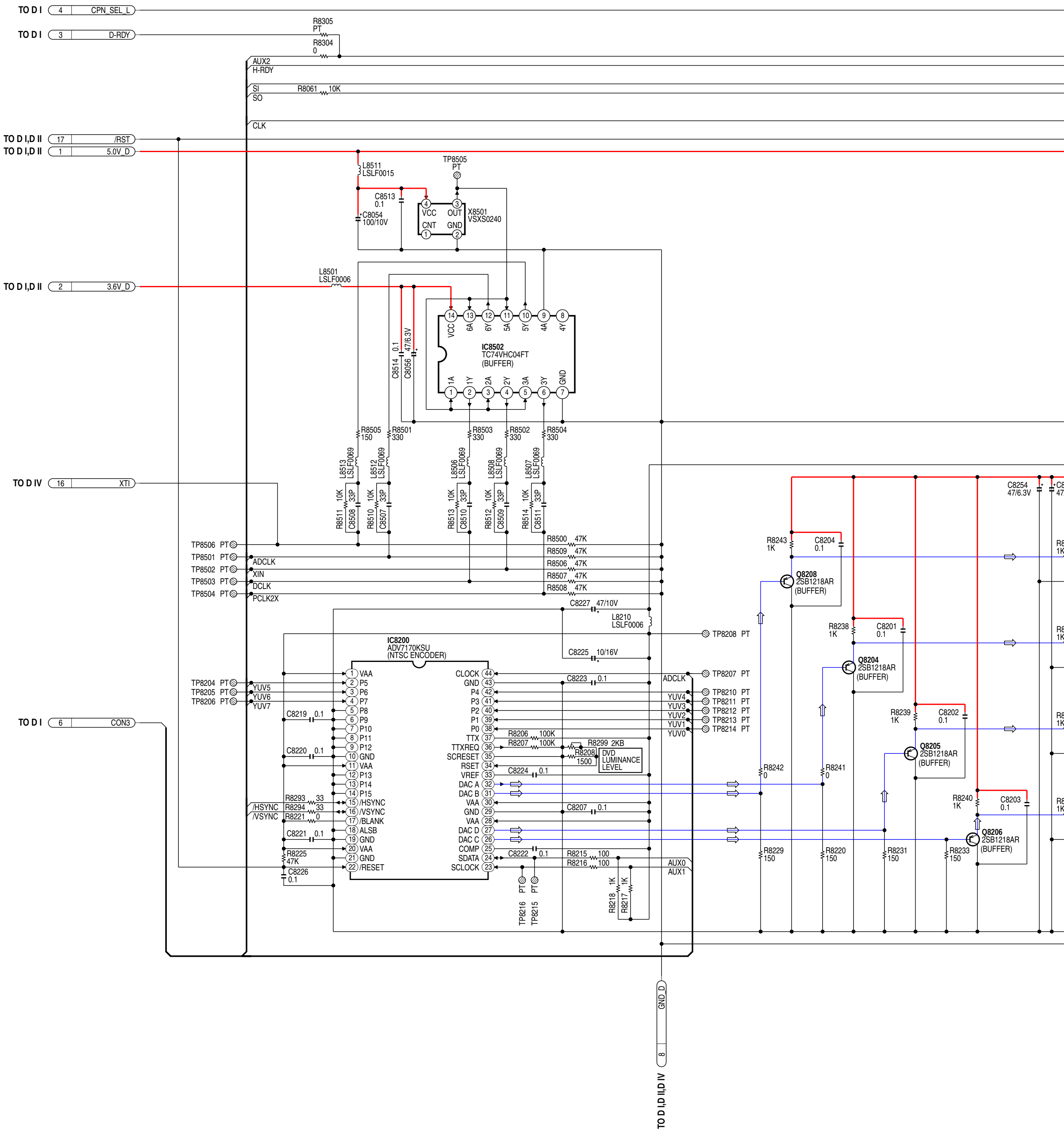
NOTE: For placing a purchase order of the parts, be sure to use the part number listed in the parts list. Do not use the part number on this diagram.



LINK TO VOLTAGE CHART

LSJB2007
PV-DF2702/PV-DF2702-K
DVD DECODER II SCHEMATIC DIAGRAM

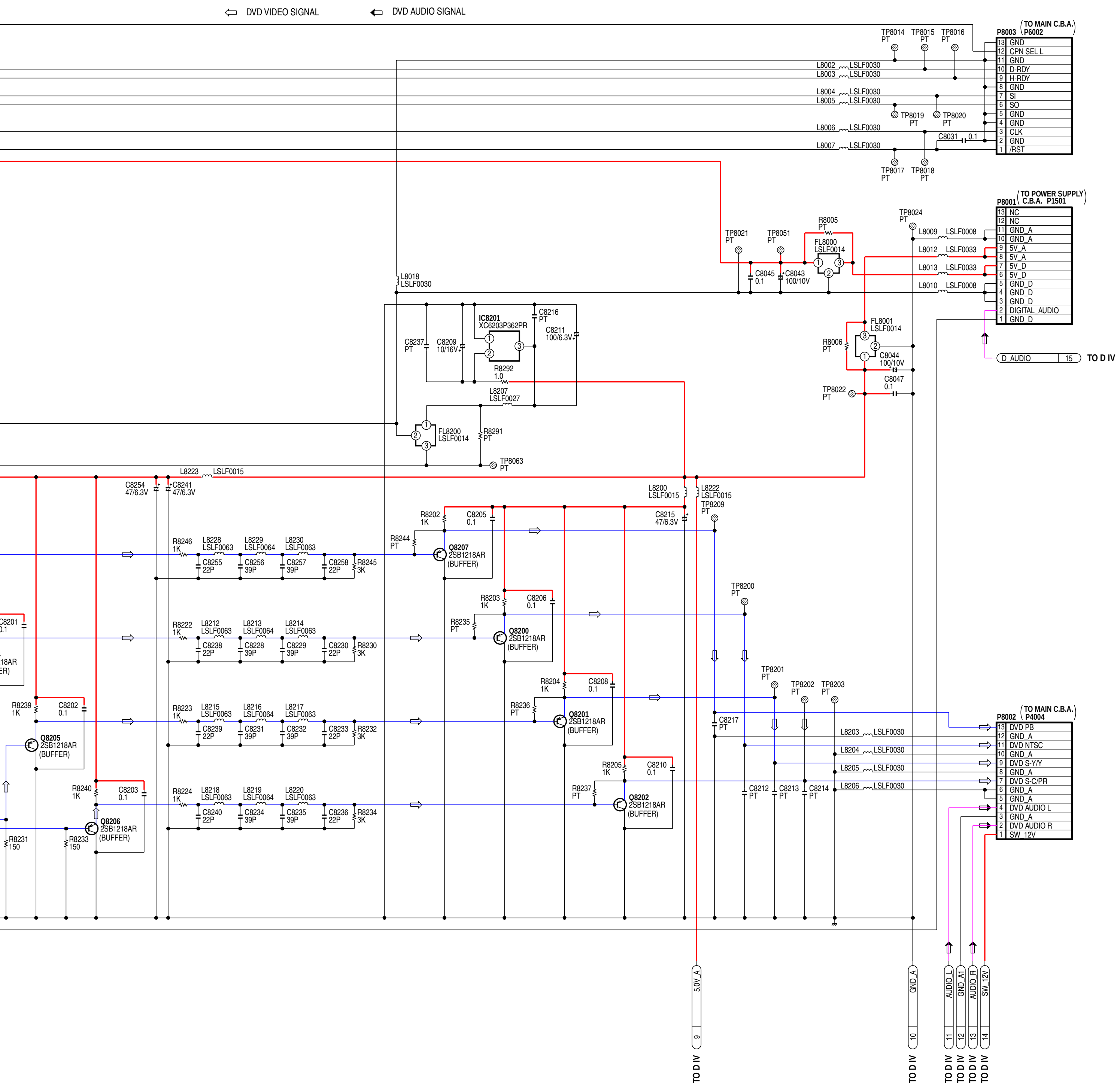
DVD DECODER III SCHEMATIC DIAGRAM



NOTE:
PARTS ENCLOSED IN DASHED LINES MARKED "PT" ARE NOT USED.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE: For placing a purchase order of the parts, be sure to use the part number listed in the parts list. Do not use the part number on this diagram.



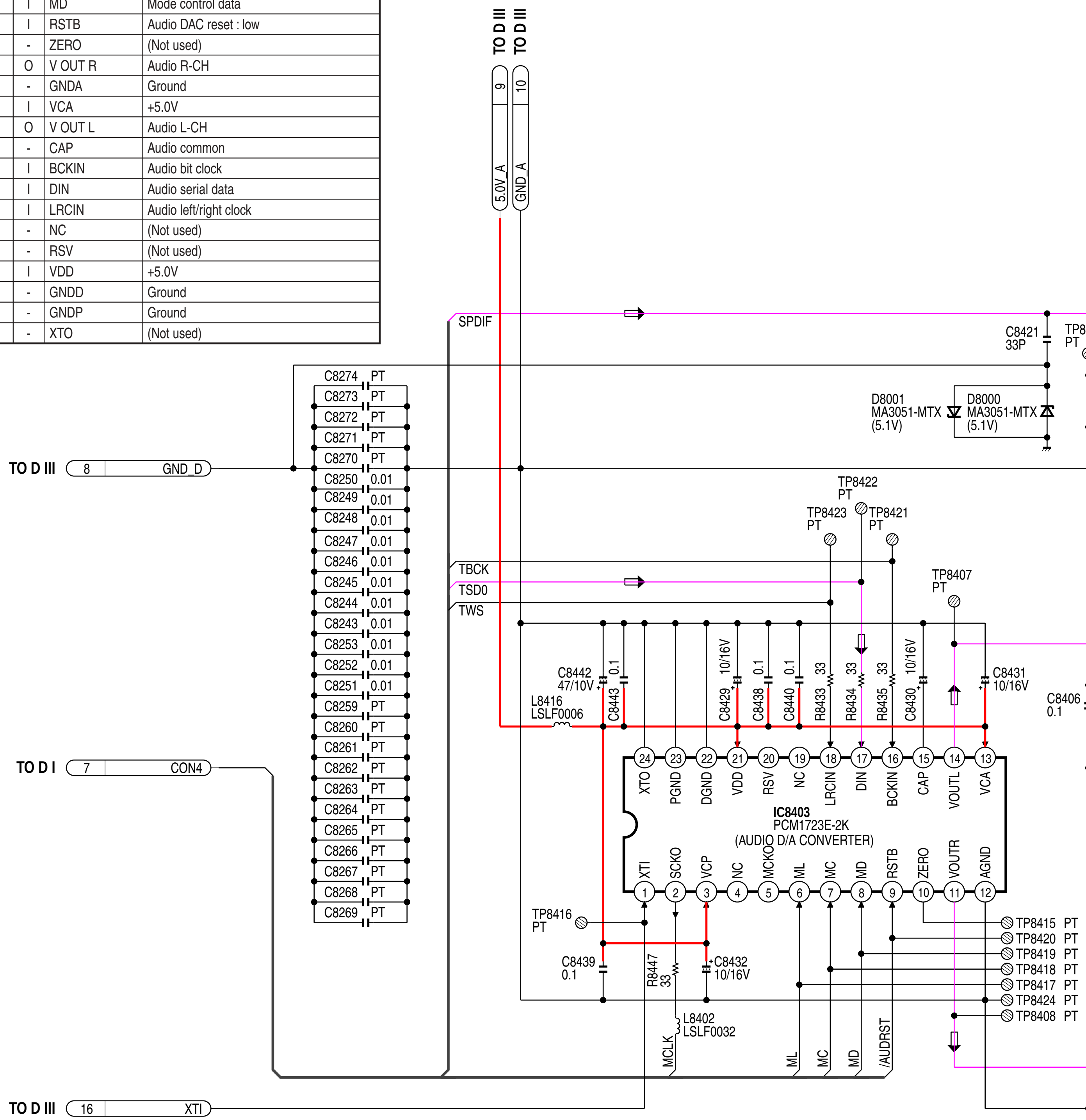
LINK TO VOLTAGE CHART

LSJB2007
PV-DF2702/PV-DF2702-K
DVD DECODER III SCHEMATIC DIAGRAM

DVD DECODER IV SCHEMATIC DIAGRAM

I/O CHART OF IC8403

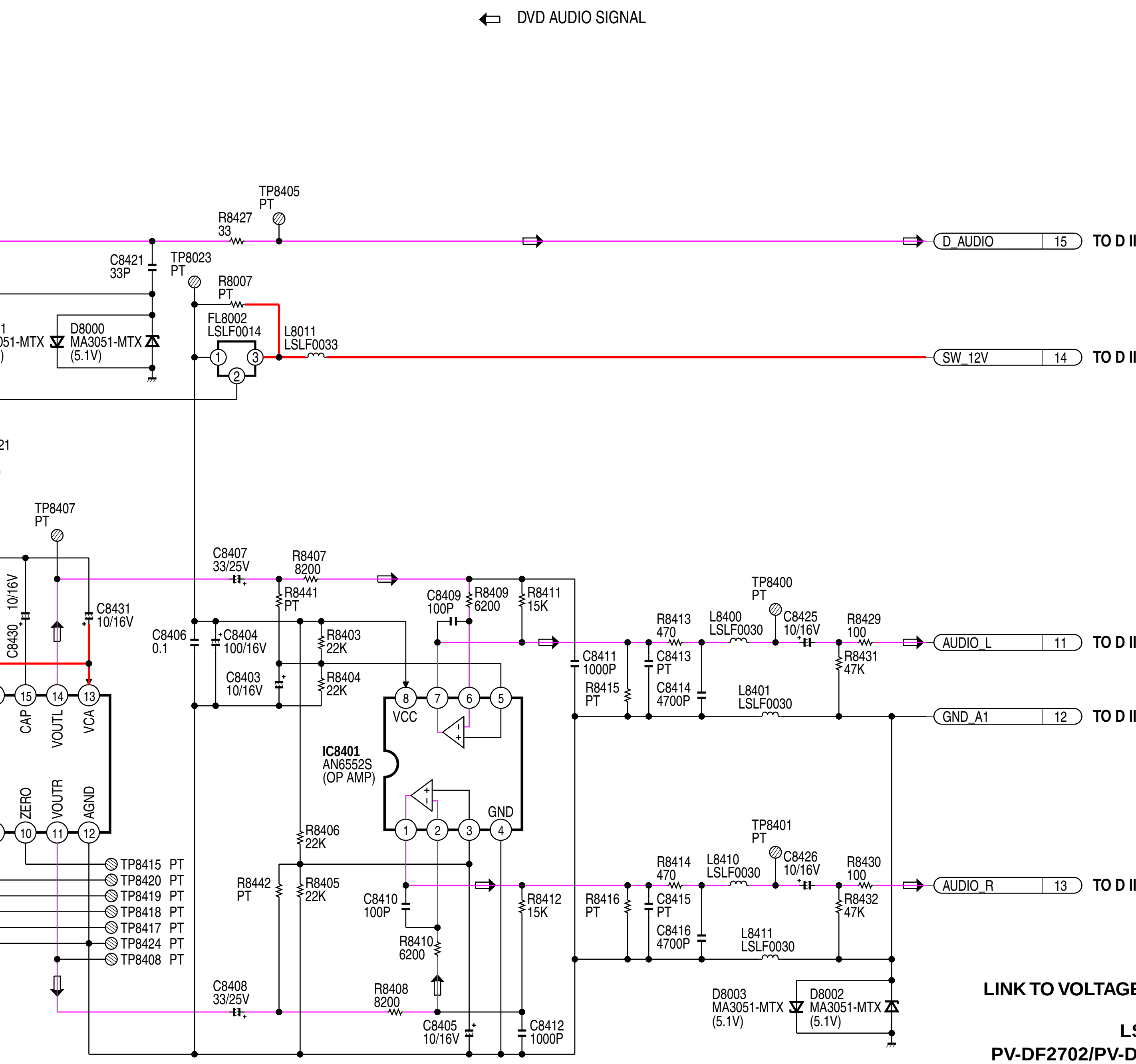
Pin No.	I/O	Signal Name	Description
1	I	XTI	27MHz clock
2	O	SCKO	System clock
3	I	VCP	+5.0V
4	-	NC	(Not used)
5	-	MCKO	(Not used)
6	I	ML	Mode control latch
7	I	MC	Mode control clock
8	I	MD	Mode control data
9	I	RSTB	Audio DAC reset : low
10	-	ZERO	(Not used)
11	O	V OUT R	Audio R-CH
12	-	GNDA	Ground
13	I	VCA	+5.0V
14	O	V OUT L	Audio L-CH
15	-	CAP	Audio common
16	I	BCKIN	Audio bit clock
17	I	DIN	Audio serial data
18	I	LRCIN	Audio left/right clock
19	-	NC	(Not used)
20	-	RSV	(Not used)
21	I	VDD	+5.0V
22	-	GNDD	Ground
23	-	GNDP	Ground
24	-	XTO	(Not used)



NOTE:
PARTS ENCLOSED IN DASHED LINES MARKED "PT" ARE NOT USED.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE: For placing a purchase order of the parts,
be sure to use the part number listed in the parts list.
Do not use the part number on this diagram.

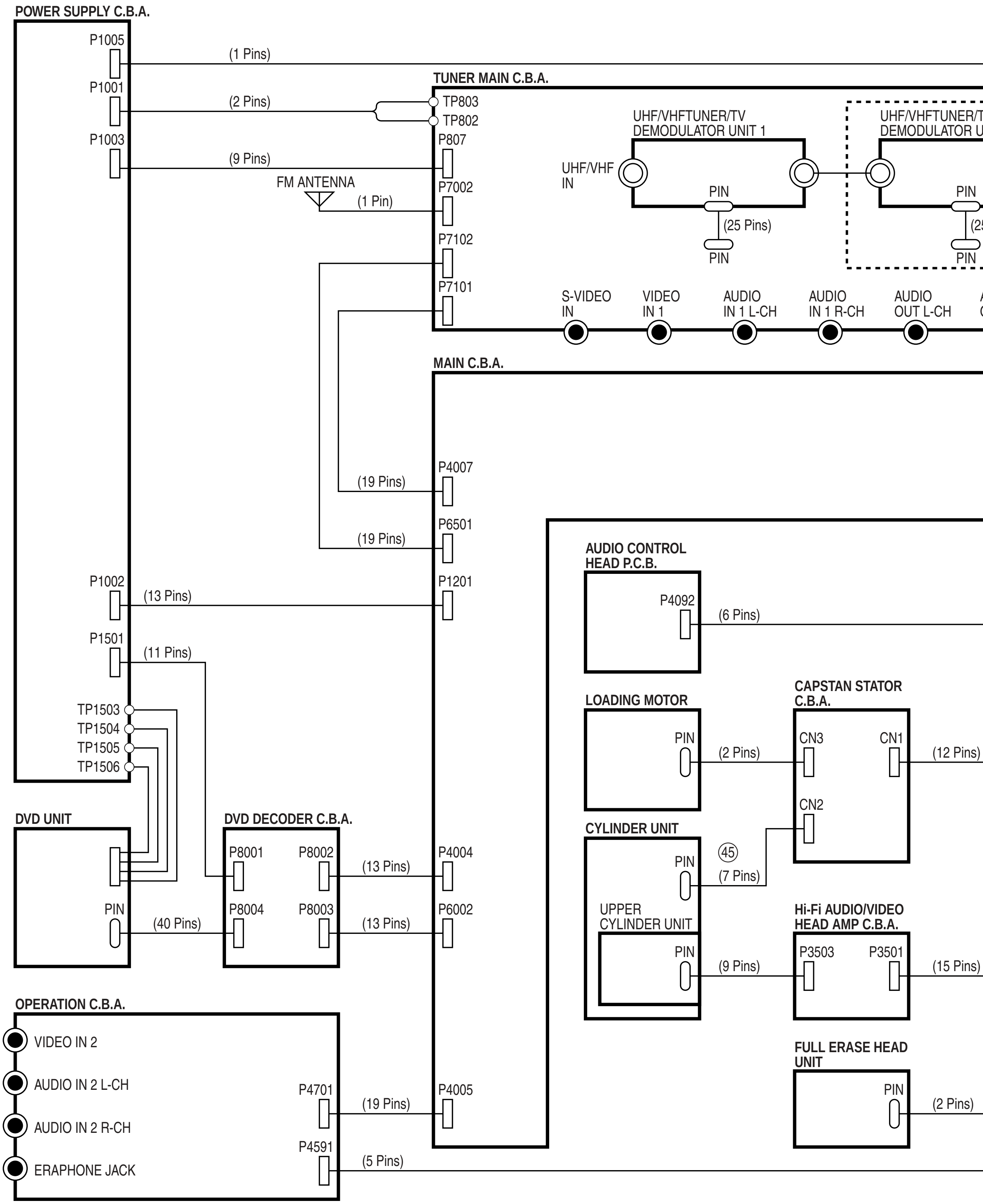


LINK TO VOLTAGE CHART

LSJB2007
PV-DF2702/PV-DF2702-K
DVD DECODER IV SCHEMATIC DIAGRAM

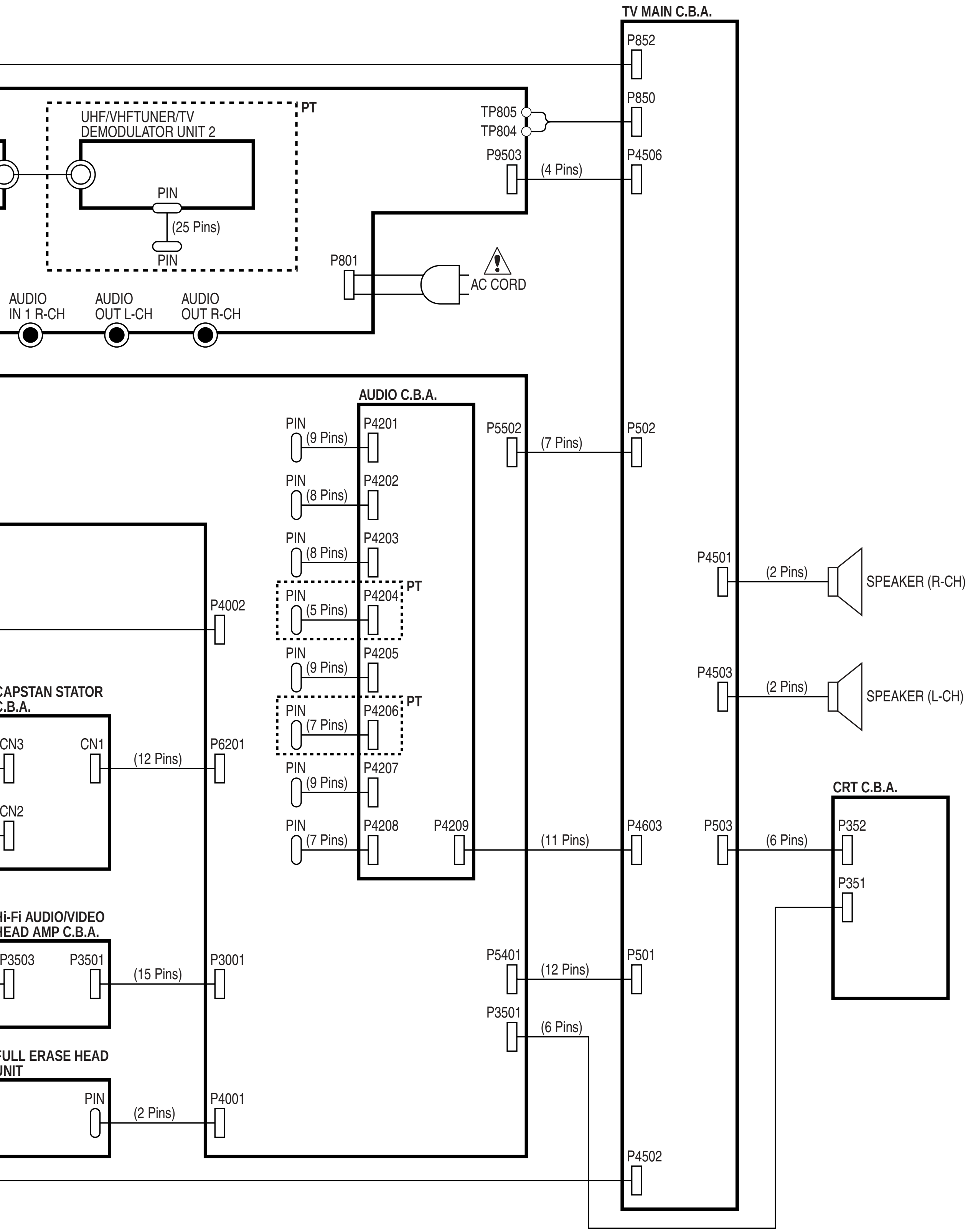
8.11. INTERCONNECTION SCHEMATIC DIAGRAM

INTERCONNECTION SCHEMATIC DIAGRAM



NOTE:
PARTS ENCLOSED IN DASHED LINES MARKED "PT" ARE NOT USED.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

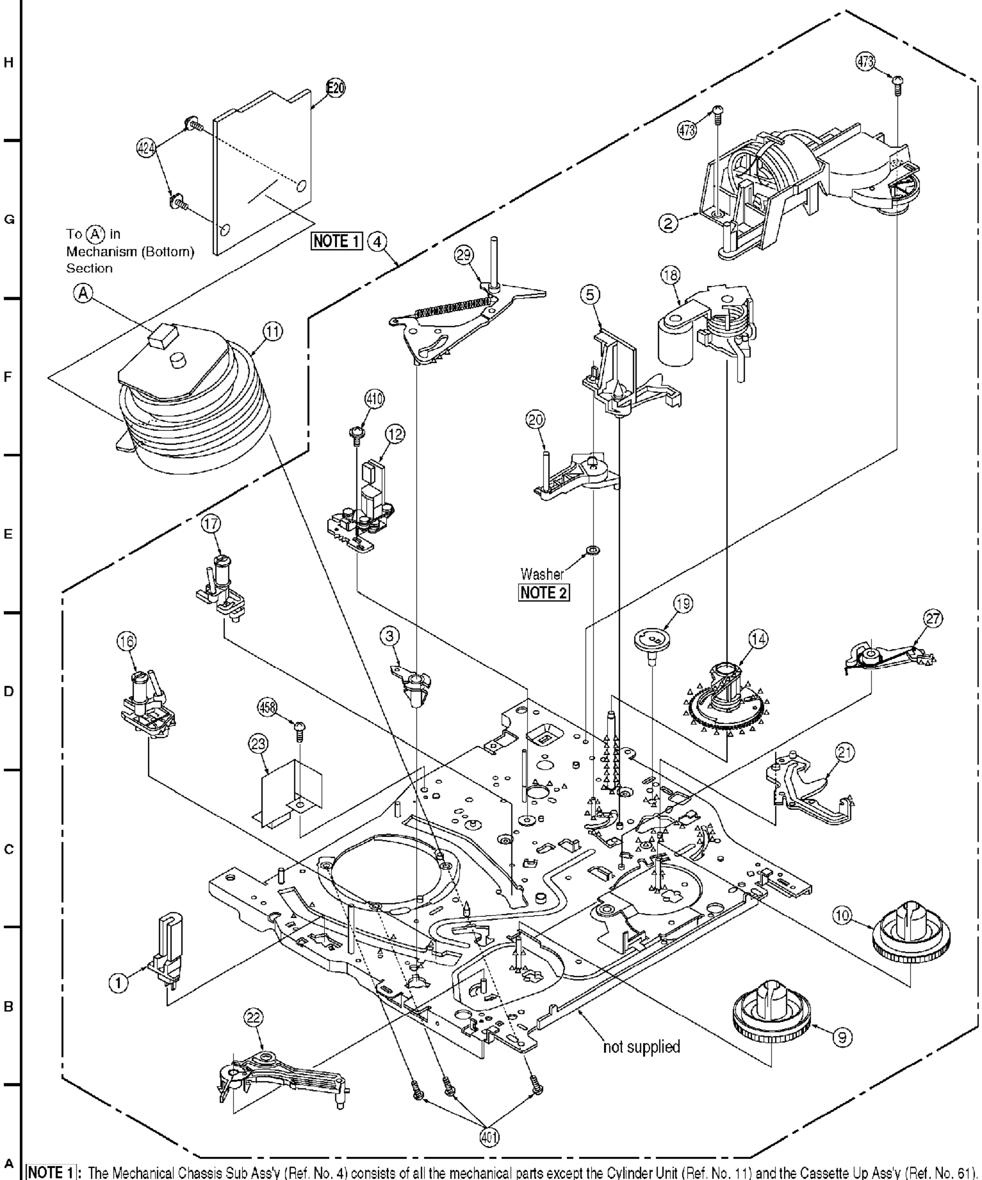


❶ MECHANISM (TOP) SECTION

LUBRICATION POINTS
When the marked parts are replaced, apply the recommended lubricants or adhesive for better maintenance of the unit.

Mark	Kind of Lubricant	Availability	Part Number
△△△	Grease	Available from Factory	VFKS0081

Note: Parts with no Ref. No. in "EXPLODED VIEWS" are not supplied. And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.



NOTE 1: The Mechanical Chassis Sub Ass'y (Ref. No. 4) consists of all the mechanical parts except the Cylinder Unit (Ref. No. 11) and the Cassette Up Ass'y (Ref. No. 61). After replacing the Mechanical Chassis Sub Ass'y, be sure to perform "TAPE INTERCHANGEABILITY ADJUSTMENT" in MECHANICAL ADJUSTMENT procedures.

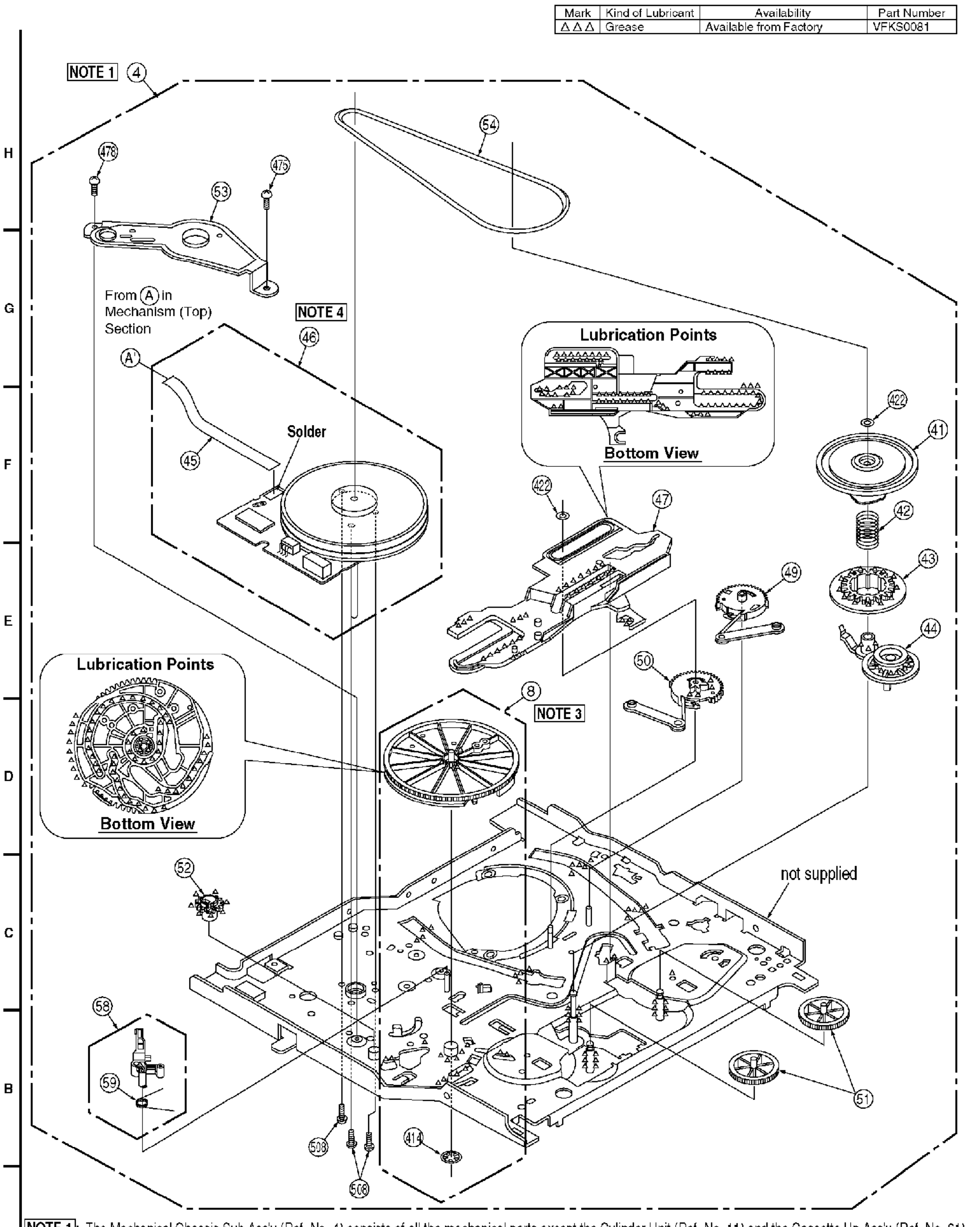
NOTE 2: In early units, a washer is used. When servicing the washer or the P5 Arm Unit, replace only the P5 Arm Unit with a new one, and remove the washer.

11.2. MECHANISM (BOTTOM) SECTION

❷ MECHANISM (BOTTOM) SECTION

LUBRICATION POINTS
When the marked parts are replaced, apply the recommended lubricants or adhesive for better maintenance of the unit.

Mark	Kind of Lubricant	Availability	Part Number
△△△	Grease	Available from Factory	VFKS0081



NOTE 1: The Mechanical Chassis Sub Ass'y (Ref. No. 4) consists of all the mechanical parts except the Cylinder Unit (Ref. No. 11) and the Cassette Up Ass'y (Ref. No. 61). After replacing the Mechanical Chassis Sub Ass'y, be sure to perform "TAPE INTERCHANGEABILITY ADJUSTMENT" in MECHANICAL ADJUSTMENT procedures.

NOTE 3: Main Cam Gear is supplied as a Main Cam Gear Kit only. Main Cam Gear Kit consists of a Main Cam Gear and a Main Cam Push Nut. However, Main Cam Push Nut is available separately as a replacement part.

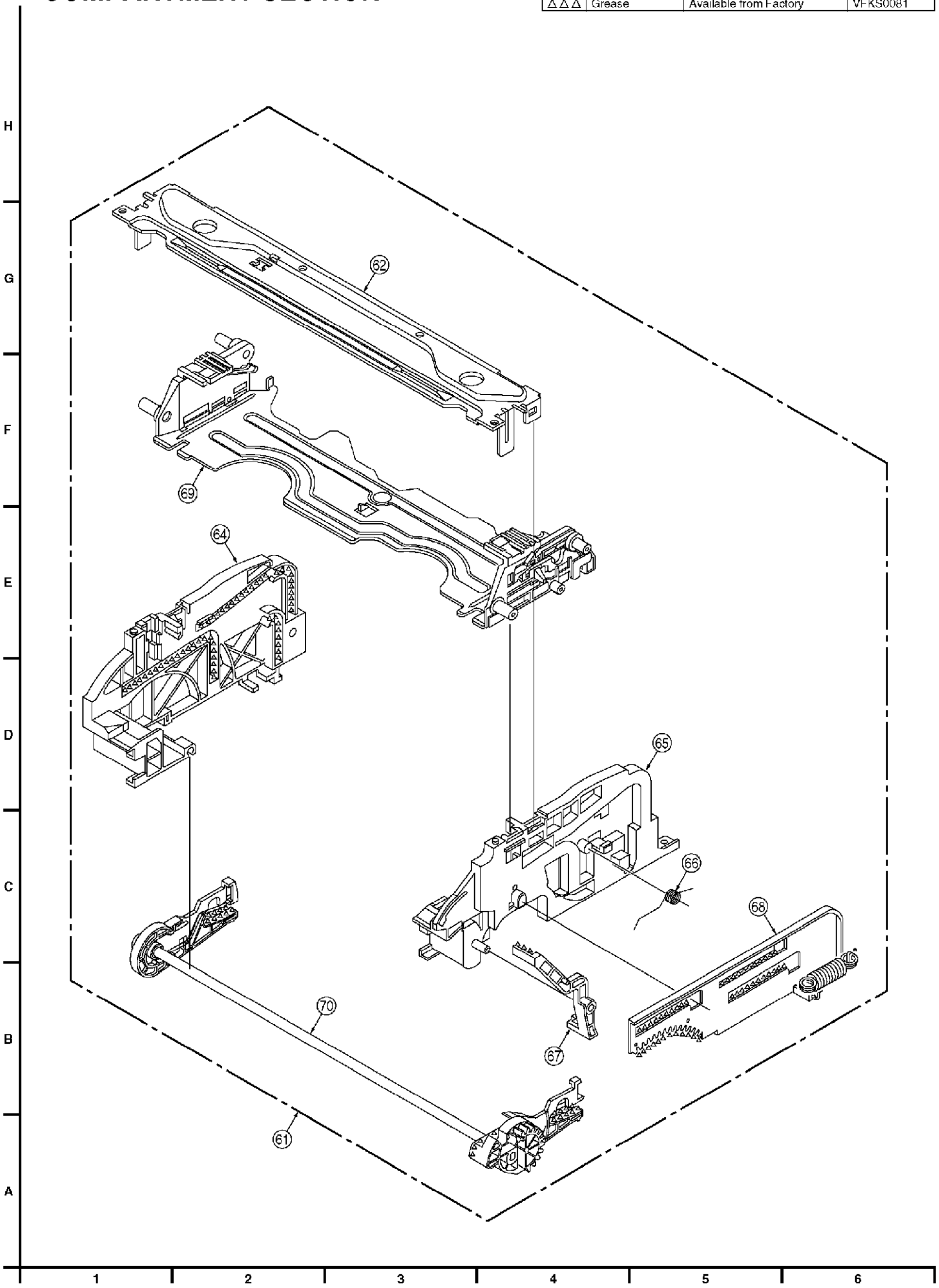
NOTE 4: The Capstan Motor Ass'y (Ref. No. 46) is supplied as a unit only. However, the Flat Flexible Cable (Ref. No. 45) is available separately as a replacement part.

11.3. CASSETTE UP COMPARTMENT SECTION

❸ CASSETTE UP COMPARTMENT SECTION

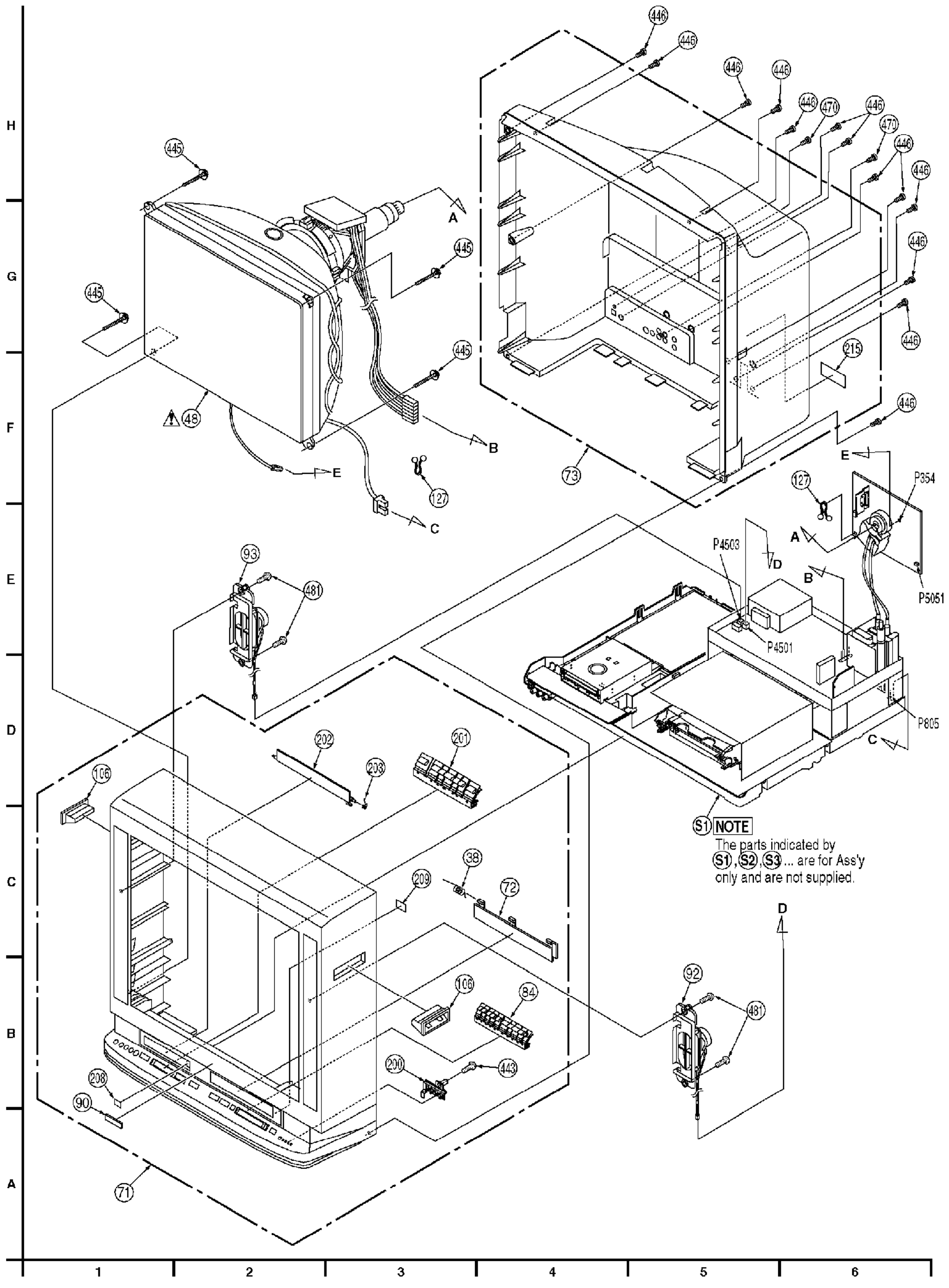
LUBRICATION POINTS
When the marked parts are replaced, apply the recommended lubricants or adhesive for better maintenance of the unit.

Mark	Kind of Lubricant	Availability	Part Number
△△△	Grease	Available from Factory	VFKS0081



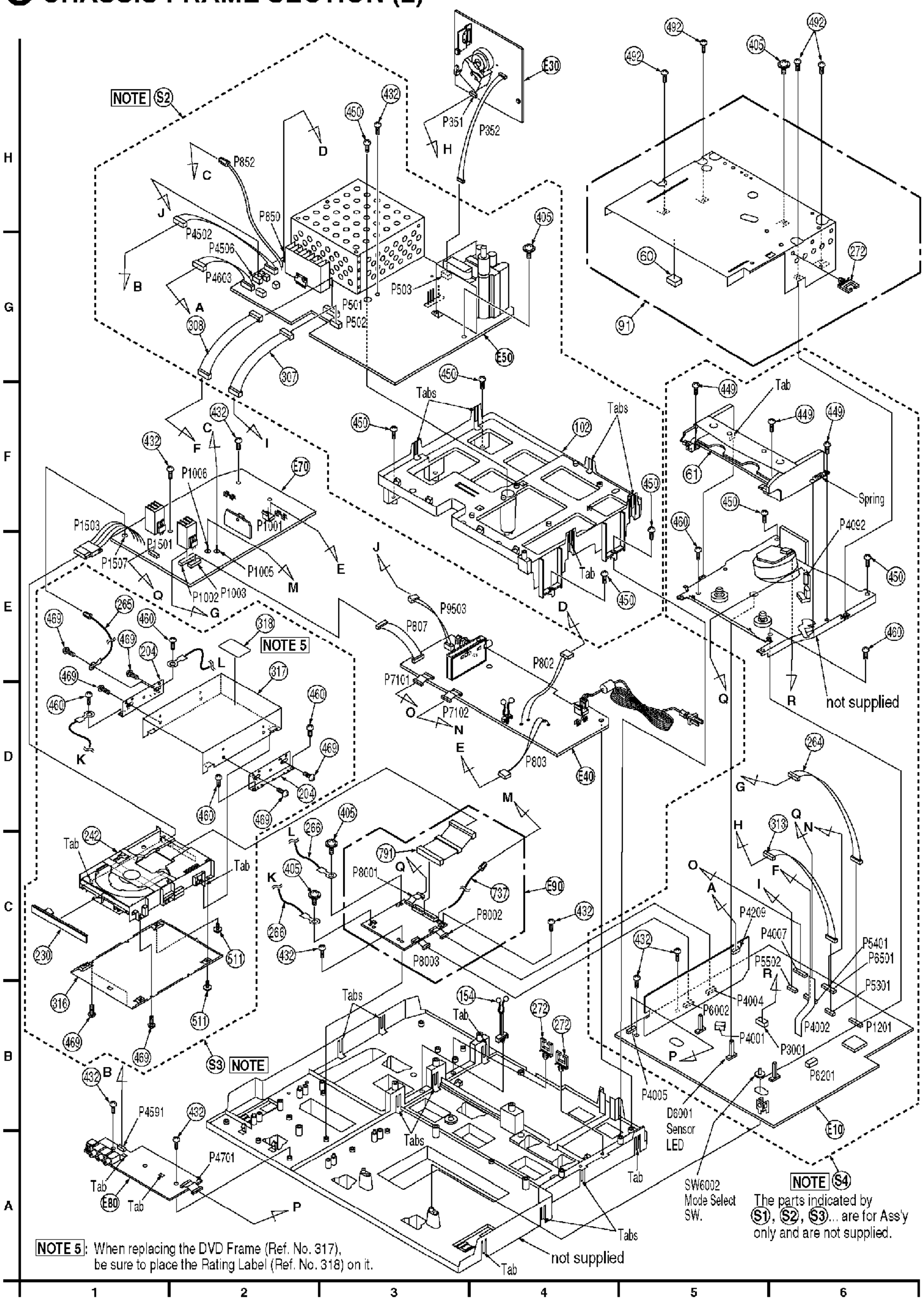
11.4. CHASSIS FRAME SECTION (1)

❹ CHASSIS FRAME SECTION (1)



11.5. CHASSIS FRAME SECTION (2)

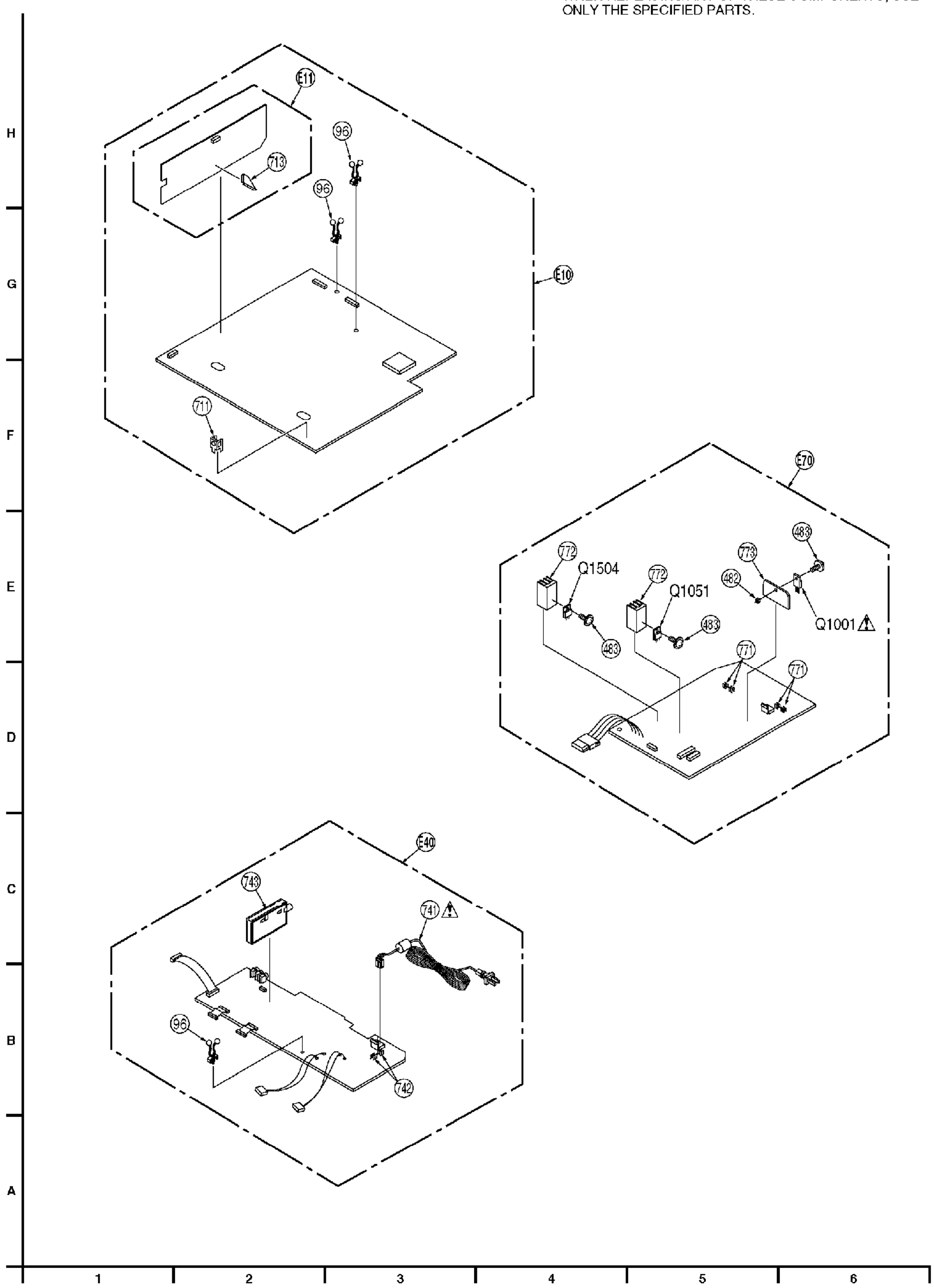
❺ CHASSIS FRAME SECTION (2)



11.6. CHASSIS FRAME SECTION (3)

❻ CHASSIS FRAME SECTION (3)

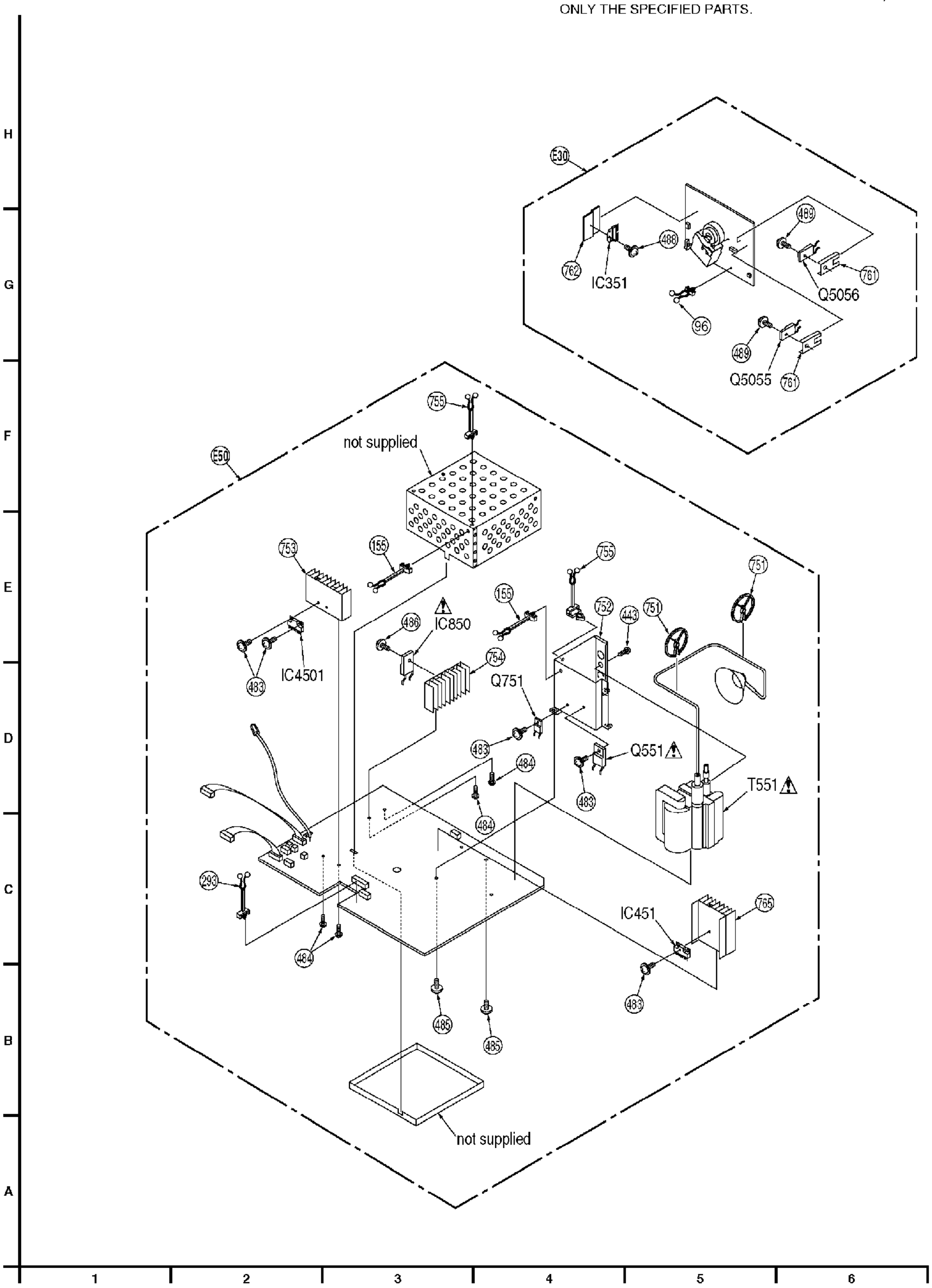
IMPORTANT SAFETY NOTICE
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.



11.7. CHASSIS FRAME SECTION (4)

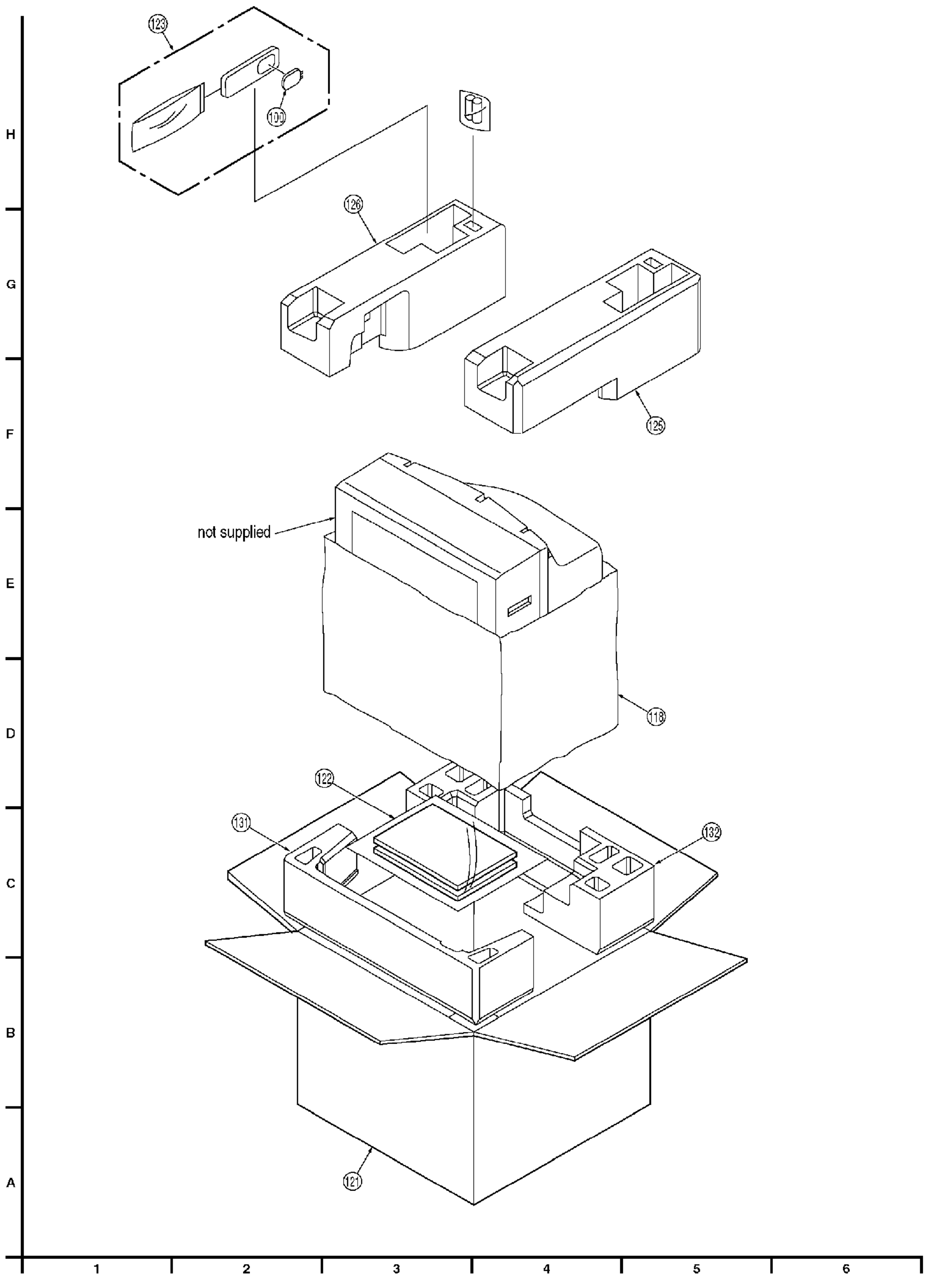
❼ CHASSIS FRAME SECTION (4)

IMPORTANT SAFETY NOTICE
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.



11.8. PACKING PARTS AND ACCESSORIES SECTION

❽ PACKING PARTS AND ACCESORIES SECTION



12. REPLACEMENT PARTS LISTS

BEFORE REPLACING PARTS, READ THE FOLLOWING:

12.1. REPLACEMENT NOTES

12.1.1. General Notes

1. Use only original replacement parts:

To maintain original function and reliability of repaired units, use

only original replacement parts which are listed with their part numbers in the parts list.

2. **IMPORTANT SAFETY NOTICE**
   Components identified by the sign ⚠ have special characteristics important for safety. When replacing any of these components, use only the specified parts.
3. **SPECIAL NOTE**
   All integrated circuits and many other semiconductor devices are electrostatically sensitive and therefore require the special handling techniques described under the "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" section of this service manual.
4. **Parts with no Ref. No. in "EXPLODED VIEWS" are not supplied. And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.**
5. **Parts different in shape or size may be used. However, only interchangeable parts will be supplied as service replacement parts.**
6. **Parts with mark "AVC" in Remarks column are supplied from AVC. Others are supplied from MKA.**
7. **Item numbers with capital letter E (Example: E10, E20,...) in the Ref. No. column are shown in the exploded views.**
8. **Parts whose Ref. Nos. are the same are interchangeable as replacement parts. Any of these parts may be ordered and used as a replacement part.**

12.1.2. Mechanical Replacement Notes

1. **Section No. of parts shown in Exploded Views are indicated in the Remarks column.**
2. **The Mechanical Chassis Sub Ass'y (Ref. No. 4) consists of all the mechanical parts except the Cylinder Unit (Ref. No. 11) and the Cassette Up Ass'y (Ref. No. 61).**
   After replacing the Mechanical Chassis Sub Ass'y, be sure to perform "TAPE INTERCHANGEABILITY ADJUSTMENT" in MECHANICAL ADJUSTMENT procedures.

3. In early units, a washer is used.
   When servicing the washer or the P5 Arm Unit, replace only the P5 Arm Unit with a new one, and remove the washer.
4. Main Cam Gear is supplied as a Main Cam Gear Kit (Ref. No. 8) only. Main Cam Gear Kit consists of a Main Cam Gear and a Main Cam Push Nut. However, Main Cam Push Nut is available separately as a replacement part.
5. The Capstan Motor Ass'y (Ref. No. 46) is supplied as a unit only. However, the Flat Flexible Cable (Ref. No. 45) is available separately as a replacement part.
6. The Infrared Remote Control Unit (Ref. No. 123) replacement part is available as a complete assembly unit only. Do not try to disassemble the Infrared Remote Control Unit. However, the battery cover is available separately as a replacement part.
7. Main Cam Push Nut (Ref. No. 414) is not reusable.
   If removed, install a new one.
8. When replacing the DVD Frame (Ref. No. 317), be sure to place the Rating Label (Ref. No. 318) on it.

12.1.3. Electrical Replacement Notes

1. Unless otherwise specified;
   All resistors are in Ω, K = 1,000 Ω, M = 1,000 kΩ.
2. Abbreviation

RTL:
   Retention Time Limited
   This indicates that the retention time is limited for this item. After the discontinuation of this item in production, it will no longer be available.

NR:
   Non Repairable Board Ass'y

MGF CHIP:
   Metal Glaze Film Chip

C CHIP:
   Ceramic Chip

COMPLX CMP:
Complex Component

W FLMPRF:
Wirewound Flameproof

C.B.A.:
Circuit Board Assembly

P.C.B.:
Printed Circuit Board

E.S.D.:
Electrostatically Sensitive Devices

3. When replacing 0 Ω resistor, a wire can be substituted for it.

4. Since the UHF/VHF TUNER/TV DEMODULATOR UNIT (Ref. No. 743) has already been pre-adjusted at the factory, do not try to adjust the UHF/VHF TUNER/TV DEMODULATOR UNIT. The UHF/ VHF TUNER/TV DEMODULATORUNIT replacement part is available as a complete assembly unit only.

5. EEP ROM IC (IC8001), DVD Decoder C.B.A. replacement note: After replacing EEP ROM IC (IC8001) or DVD Decoder C.B.A., confirm the Firmware version of DVD using Self-Diagnostic function. If the version is different than that indicated on the Firmware Disc, update it using the Firmware Disc. Refer to "HOWTO UPDATE THE FIRMWARE OF DVD."

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PV-DF2702	A
PV-DF2702-K	B

12.2. MECHANICAL REPLACEMENT PARTS

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PV-DF2702	A
PV-DF2702-K	B

MECHANICAL REPLACEMENT PARTS

Ref. No.	Part No.	Part Name & Description	Remarks
1	VBSS0033	FULL ERASE HEAD	1
2	LSXK0094	MOTOR BLOCK UNIT	1
3	LSDB0045	TENSION ARM BOSS	1
4	LSXY0281	MECHANICAL CHASSIS SUB ASS'Y	1,2
5	LSMD0209	OPENER PIECE	1
8	VVGS0009	MAIN CAM GEAR KIT	2
9	LSDR0004	S REEL TABLE	1
10	LSDR0005	T REEL TABLE	1
11	LSEG0030	CYLINDER UNIT	1
12	VEHS0587	AUDIO CONTROL/ERASE HEAD UNIT	1
14	LSDG0112	LIFT GEAR	1
16	VXDS0213	LOADING POST BASE-S UNIT	1
17	VXDS0214	LOADING POST BASE-T UNIT	1
18	LSXL0079	PINCH ARM UNIT	1
19	LSDG0110	INTERMEDIATE GEAR A	1
20	LSXL0078	P5 ARM UNIT	1
21	LSML0131	DRIVE RACK ARM	1
22	LSXL0077	TENSION CONTROL ARM UNIT	1
23	LSSC0518	A/C SHIELD PLATE	1
27	VXLS1130	T BRAKE UNIT	1
29	VXLS1129	TENSION ARM UNIT	1
38	LSMB0221	CASSETTE DOOR SPRING	4
41	VXPS0389	CENTER CLUTCH UNIT	2
42	VMBS1151	CHANGING GEAR SPRING	2
43	LSDG0114	CHANGING GEAR	2
44	VXLS1091	IDLER ARM UNIT	2
45	LSJW0027	FLAT FLEXIBLE CABLE W/OUT PLUG,12V DC	2
46	LSEM0056	CAPSTAN MOTOR ASS'Y	2
47	LSMM0003	MAIN ROD	2
48	LXQVB01272F	COLOR PICTURE TUBE UNIT	4 ⚠
49	VXLS1099	S LOADING ARM UNIT	2
50	VXLS1098	T LOADING ARM UNIT	2
51	LSDG0116	REEL GEAR	2
52	LSDG0111	INTERMEDIATE GEAR B	2
53	LSMA0532	SUPPORT ANGLE	2
54	LSDV0009	CAPSTAN BELT SQUARE,ELASTOMER 2MM	2
58	LSXL0081	SS BRAKE ARM UNIT	2
59	LSMB0196	SS BRAKE SPRING	2
60	VMFS0311	CUSHION	5
61	VXYS1347	CASSETTE UP ASS'Y	3,5
62	LSMA0352	TOP PLATE	3
64	LSMD0174	SIDE PLATE L	3
65	LSMD0173	SIDE PLATE R	3
66	LSMB0218	SUPPORT SPRING	3
67	LSML0096	OPENER LEVER	3
68	VXLS1111	DRIVE RACK UNIT	3
69	VXAS4423	HOLDER UNIT	3
70	VXLS1110	WIPER ARM UNIT	3
71	LXQKY01272F	FRONT CABINET ASS'Y (A)	4
71	LXQKY01272FK	FRONT CABINET ASS'Y (B)	4
72	LXQKF01272F	CASSETTE DOOR-LID UNIT	4
73	LXQKV01272FK	REAR COVER UNIT (A)	4
73	LXQKV01272F	REAR COVER UNIT (B)	4
84	LSGU0260	OPERATION BUTTON A	4

Ref. No.	Part No.	Part Name & Description	Remarks
90	TBMA008	BADGE,ABS RESIN	4
91	LXQUS01272FK	TOP SHIELD PLATE ASS'Y	5
92	LXQAS01270FU	SPEAKER UNIT R	4
93	LXQAS02270FU	SPEAKER UNIT L	4
96	TMM7464-1	CLAMPER	6,7
100	VKFS2235	BATTERY COVER	8
102	LSMP0249	FRAME	5
106	LSKH0055	HANDLE	4
118	LPE64005A	BAG,POLYETHYLENE	8
121	LSPG1274	PACKING CASE,PAPER (A)	8
121	LSPG1345	PACKING CASE,PAPER (B)	8
122	LSQT0521A	INSTRUCTION BOOK (A)	8
122	LSQF0586	FAN BAG (B)	8
123	LSSQ0302	INFRARED REMOTE CONTROL UNIT	8
125	LSPN0177	TOP CUSHION RIGHT,STYROFOAM	8
126	LSPN0176	TOP CUSHION LEFT,STYROFOAM	8
127	TMM6463-1	PURSE LOCK CLAMPER	4
131	LSPN0174	BOTTOM CUSHION FRONT,STYROFOAM	8
132	LSPN0175	BOTTOM CUSHION REAR,STYROFOAM	8
154	TMM5439-1	CLAMPER	5,6
155	TMM76403-1	CLAMPER	7
200	LSGL0341	PANEL LIGHT	4
201	LSGU0261	OPERATION BUTTON B	4
202	LXQKF02272F	DVD DISK DOOR-LID UNIT	4
203	LSMB0170	DVD CASSETTE DOOR SPRING	4
204	LSMA0438	MOUNT PLATE,STEEL	5
208	TMK77708	CUSHION,RUBBER	4
209	VMFS0213	SHEET,NYLON+RAYON	4
215	LSQL1180	DOLBY DIGITAL CAUTION LABEL	4
230	LSKF0325	TRAY COVER	5
242	LSXK0089	DVD UNIT	5
264	VEKS5768	CONNECTOR CABLE W/PLUG	5
265	VEKS5797	CONNECTOR CABLE W/PLUG,0V	5
266	VEKS5811	GROUNDING WIRE	5
272	TMM77412	CLAMPER	5
293	TMM76455	PURSE LOCK CLAMPER	7
307	VEKS5858	CONNECTOR CABLE W/PLUG,DC 12V	5
308	VEKS5859	CONNECTOR CABLE W/PLUG,DC 20V	5
313	VEKS5860	CONNECTOR CABLE W/PLUG,DC 12V	5
316	LSXA0415	LOWER SHIELD ASS'Y	5
317	LMMK0201	DVD FRAME	5
318	LSQL1260	RATING LABEL	5
401	VHDS0475	SCREW,STEEL	1
405	VHDS0496	SCREW W/WASHER,STEEL	5
410	VHDS0498	SCREW W/WASHER,STEEL	1
414	VHNS0070	MAIN CAM PUSH NUT,STEEL	2
422	XWGV2D5G	WASHER,NYLON	2
424	XYC26+SF6J	SCREW W/WASHER,STEEL	1
432	XTV3+8JR	TAPPING SCREW,STEEL	5
443	XTV4+12A	TAPPING SCREW,STEEL	4,7
445	LHT60001Y	SCREW W/WASHER,STEEL	4
446	XTV4+16A	TAPPING SCREW,STEEL	4
449	VHDS0493	TAPPING SCREW,STEEL	5
450	VHDS0309	SCREW,STEEL	5

Ref. No.	Part No.	Part Name & Description	Remarks
458	XTV3+8J	TAPPING SCREW,STEEL	1
460	XTN4+12A	TAPPING SCREW,STEEL	5
469	XSN3+6	SCREW,STEEL	5
470	XTV3+10G	TAPPING SCREW,STEEL	4
473	XYN26+C6	SCREW W/WASHER,STEEL	1
475	XTV26+5FJ	TAPPING SCREW,STEEL	2
478	VHDS0495	SCREW,STEEL	2
481	XTW4+Z15D	TAPPING SCREW,STEEL	4
482	XNG3	NUT,STEEL	6
483	XYN3+F10S	SCREW W/WASHER,STEEL	6,7
484	XTW3+10J	TAPPING SCREW,STEEL	7
485	XYE3+EJ10	SCREW W/WASHER,STEEL	7
486	XYN3+F12S	SCREW,STEEL	7
488	XYN3+F6S	SCREW W/WASHER,STEEL	7
489	XYN3+F8S	SCREW W/WASHER,STEEL	7
492	VHDS0274	TAPPING SCREW,STEEL	5
508	XTB26+6J	TAPPING SCREW,STEEL	2
511	XYC26+CF8	SCREW W/WASHER,STEEL	5
711	PNA4611M00HC	INFRARED RECEIVER UNIT	6
713	VMAS1912	P.C.B. SUPPORT ANGLE	6
737	VEKS5836	CONNECTOR CABLE W/PLUG,0V	5
741	LSJA0349-FE	AC CORD W/PLUG,120V	6 ⚠
742	K3GE1ZB00003	FUSE HOLDER	6
743	ENG36701G	TUNER,UHF/VHF NR	6
751	LML69001A	ANODE LEAD CLAMPER	7
752	LSMA0444	HEAT SINK	7
753	LSSC0256	HEAT SINK	7
754	LSSC0438	HEAT SINK	7
755	TMM16480-1	CLAMPER	7
761	TUC15717	HEAT SINK	7
762	TUC76649-4	HEAT SINK	7
765	LSSC0254	HEAT SINK	7
771	EYF52BC	FUSE HOLDER	6
772	LSSC0408	HEAT SINK	6
773	VSCS1072	HEAT SINK	6
791	VEKS5773	CONNECTOR CABLE W/PLUG,DC 5V	5
E10	LSEP2034A	MAIN C.B.A.	5,6 RTL
E11	VEPS4036B	AUDIO C.B.A.	6 RTL
E20	LSEP2010A	Hi-Fi AUDIO/VIDEO HEAD AMP C.B.A.	1 RTL
E30	LRP63021C	CRT C.B.A.	5,7 RTL
E40	VEPS9005B	TUNER MAIN C.B.A.	5,6 RTL
E50	LSEP2036A	TV MAIN C.B.A.	5,7 RTL
E70	VEPS1020B	POWER SUPPLY C.B.A.	5,6 RTL
E80	VEPS8060B	OPERATION C.B.A.	5 RTL
E90	LSEP2007B	DVD DECODER C.B.A.	5 RTL

SERVICE FIXTURES AND TOOLS

Ref. No.	Part No.	Part Name & Description	Remarks
	VFMS0003H6	VHS ALIGNMENT TAPE	
	VFKS0081	GREASE	
	VFK0329	POST ADJUSTMENT DRIVER	
	VFK27	HEAD CLEANING STICK	
	VFK0330	H-POSITION ADJUSTMENT DRIVER	
	DVDT-S01	DVD TEST DISC	AVC
	LSUA0034	EXTENSION CABLE	

12.3. ELECTRICAL REPLACEMENT PARTS LIST

PRINTED CIRCUIT BOARD ASSEMBLY

Ref. No.	Part No.	Part Name & Description	Remarks
E10	LSEP2034A	MAIN C.B.A.	E.S.D. RTL
E11	VEPS4036B	AUDIO C.B.A.	E.S.D. RTL
E20	LSEP2010A	Hi-Fi AUDIO/VIDEO HEAD AMP C.B.A.	RTL
E30	LRP63021C	CRT C.B.A.	RTL
E40	VEPS9005B	TUNER MAIN C.B.A.	E.S.D. RTL
E50	LSEP2036A	TV MAIN C.B.A.	E.S.D. RTL
E70	VEPS1020B	POWER SUPPLY C.B.A.	E.S.D. RTL
E80	VEPS8060B	OPERATION C.B.A.	RTL
E90	LSEP2007B	DVD DECODER C.B.A.	E.S.D. RTL

12.3.1. MAIN C.B.A.

INTEGRATED CIRCUITS

Ref. No.	Part No.	Part Name & Description	Remarks
IC3001	AN3479FBP-A	IC, LINEAR	
IC3201	MN3885S	IC, CCD 1H DELAY	E.S.D.
IC3301	LC8632165S53	IC, 8BIT MICROCONTROLLER	E.S.D.
IC3302	C1AB00000402	IC, LINEAR	
IC5101	MN82840	IC, LOGIC(OTHER)	E.S.D.
IC5301	AN5368FB	IC, LINEAR	
IC5302	C1AB00000399	IC, LINEAR	
IC5351	C1AB00001518	IC, LINEAR	
IC5351	C1AB00000399	IC, LINEAR	
IC5361	C1AB00000402	IC, LINEAR	
IC6001	MN101D06GCH	IC, 8BIT MICROCONTROLLER	E.S.D.
IC6002	B3NAA0000049	PHOTO INTERRUPUTER	
IC6003	B3NAA0000049	PHOTO INTERRUPUTER	
IC6004	LSSK0003	IC, 2K EEP ROM	E.S.D.
IC6005	C0EBJ0000080	IC, CMOS STANDARD LOGIC	E.S.D.
IC6005	C0EBJ0000099	IC, CMOS STADNARD LOGIC	E.S.D.
IC6005	RN5VS47CA-TR	IC, CMOS STANDARD LOGIC	E.S.D.

TRANSISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
Q3001	2SB1218A0L	TRANSISTOR SI PNP CHIP	
Q3001	B1ADCF000063	TRANSISTOR SI PNP CHIP	
Q3002	2SD1819A0L	TRANSISTOR SI NPN CHIP	
Q3002	B1ABCF000020	TRANSISTOR SI NPN CHIP	
Q3004	2SB1218A0L	TRANSISTOR SI PNP CHIP	
Q3004	B1ADCF000063	TRANSISTOR SI PNP CHIP	
Q3301	2SB1218A0L	TRANSISTOR SI PNP CHIP	
Q3301	B1ADCF000063	TRANSISTOR SI PNP CHIP	
Q3305	2SD1819A0L	TRANSISTOR SI NPN CHIP	
Q3305	B1ABCF000020	TRANSISTOR SI NPN CHIP	
Q4001	2SB1218A0L	TRANSISTOR SI PNP CHIP	
Q4001	B1ADCF000063	TRANSISTOR SI PNP CHIP	
Q4002	2SD1819A-RS	TRANSISTOR SI NPN CHIP	
Q4003	2SD1819A-RS	TRANSISTOR SI NPN CHIP	
Q4101	2SD0601A0L	TRANSISTOR SI NPN CHIP	
Q4101	B1ABCF000011	TRANSISTOR SI NPN CHIP	
Q4171	2SD1819A0L	TRANSISTOR SI NPN CHIP	
Q4171	B1ABCF000020	TRANSISTOR SI NPN CHIP	
Q5008	2SB1218A0L	TRANSISTOR SI PNP CHIP	
Q5008	B1ADCF000063	TRANSISTOR SI PNP CHIP	
Q5010	2SB1218A0L	TRANSISTOR SI PNP CHIP	
Q5010	B1ADCF000063	TRANSISTOR SI PNP CHIP	
Q5011	2SD1819A0L	TRANSISTOR SI NPN CHIP	
Q5011	B1ABCF000020	TRANSISTOR SI NPN CHIP	
Q5012	2SB1218A0L	TRANSISTOR SI PNP CHIP	
Q5012	B1ADCF000063	TRANSISTOR SI PNP CHIP	
Q5013	2SD1819A0L	TRANSISTOR SI NPN CHIP	
Q5013	B1ABCF000020	TRANSISTOR SI NPN CHIP	
Q5101	2SD1819A0L	TRANSISTOR SI NPN CHIP	
Q5101	B1ABCF000020	TRANSISTOR SI NPN CHIP	
Q5104	2SD1819A0L	TRANSISTOR SI NPN CHIP	
Q5104	B1ABCF000020	TRANSISTOR SI NPN CHIP	
Q5105	2SB1218A0L	TRANSISTOR SI PNP CHIP	
Q5105	B1ADCF000063	TRANSISTOR SI PNP CHIP	
Q5107	2SD1819A0L	TRANSISTOR SI NPN CHIP	
Q5107	B1ABCF000020	TRANSISTOR SI NPN CHIP	
Q5108	2SB1218A0L	TRANSISTOR SI PNP CHIP	
Q5108	B1ADCF000063	TRANSISTOR SI PNP CHIP	
Q5110	2SD1819A0L	TRANSISTOR SI NPN CHIP	
Q5110	B1ABCF000020	TRANSISTOR SI NPN CHIP	
Q5114	2SB1218A0L	TRANSISTOR SI PNP CHIP	
Q5114	B1ADCF000063	TRANSISTOR SI PNP CHIP	
Q5118	2SD1819A0L	TRANSISTOR SI NPN CHIP	
Q5118	B1ABCF000020	TRANSISTOR SI NPN CHIP	
Q5119	2SB1218A0L	TRANSISTOR SI PNP CHIP	
Q5119	B1ADCF000063	TRANSISTOR SI PNP CHIP	
Q5120	2SD1819A0L	TRANSISTOR SI NPN CHIP	
Q5120	B1ABCF000020	TRANSISTOR SI NPN CHIP	
Q5121	2SD1819A0L	TRANSISTOR SI NPN CHIP	
Q5121	B1ABCF000020	TRANSISTOR SI NPN CHIP	
Q5125	2SB1218A0L	TRANSISTOR SI PNP CHIP	
Q5125	B1ADCF000063	TRANSISTOR SI PNP CHIP	
Q5151	2SD1819A0L	TRANSISTOR SI NPN CHIP	
Q5151	B1ABCF000020	TRANSISTOR SI NPN CHIP	

Ref. No.	Part No.	Part Name & Description	Remarks
Q5152	2SD1819A0L	TRANSISTOR SI NPN CHIP	
Q5152	B1ABCF000020	TRANSISTOR SI NPN CHIP	
Q5301	2SB1218A0L	TRANSISTOR SI PNP CHIP	
Q5301	B1ADCF000063	TRANSISTOR SI PNP CHIP	
Q5302	2SD1819A0L	TRANSISTOR SI NPN CHIP	
Q5302	B1ABCF000020	TRANSISTOR SI NPN CHIP	
Q5501	2SB1218A0L	TRANSISTOR SI PNP CHIP	
Q5501	B1ADCF000063	TRANSISTOR SI PNP CHIP	
Q5901	2SD225900A	TRANSISTOR SI NPN	
Q5901	2SD1858-RTV2	TRANSISTOR SI NPN	
Q6001	2SB0709A0L	TRANSISTOR SI PNP CHIP	
Q6001	B1ADCF000001	TRANSISTOR SI PNP CHIP	
Q6002	2SD0601A0L	TRANSISTOR SI NPN CHIP	
Q6002	B1ABCF000011	TRANSISTOR SI NPN CHIP	
Q6003	2SD0601A0L	TRANSISTOR SI NPN CHIP	
Q6003	B1ABCF000011	TRANSISTOR SI NPN CHIP	
Q6004	2SB0709A0L	TRANSISTOR SI PNP CHIP	
Q6004	B1ADCF000001	TRANSISTOR SI PNP CHIP	
Q6005	2SB0709A0L	TRANSISTOR SI PNP CHIP	
Q6005	B1ADCF000001	TRANSISTOR SI PNP CHIP	
Q6006	2SD0601A0L	TRANSISTOR SI NPN CHIP	
Q6006	B1ABCF000011	TRANSISTOR SI NPN CHIP	
Q6009	VEKS5707	PHOTO SENSOR UNIT	
Q6010	VEKS5707	PHOTO SENSOR UNIT	

DIODES

Ref. No.	Part No.	Part Name & Description	Remarks
D4171	MA2C165001VT	DIODE SI	
D4171	B0AACK000004	DIODE SI	
D4171	1SS119	DIODE SI	
D5005	MA2C165001VT	DIODE SI	
D5005	B0AACK000004	DIODE SI	
D5005	1SS119	DIODE SI	
D5304	MA2C165001VT	DIODE SI	
D5304	B0AACK000004	DIODE SI	
D5304	1SS119	DIODE SI	
D5501	MA4062-L	DIODE ZENER 6.2V	⚠
D5506	MA4047-M	DIODE ZENER 4.7V	
D5507	MA2C165001VT	DIODE SI	
D5507	B0AACK000004	DIODE SI	
D5507	1SS119	DIODE SI	
D5508	MA2C165001VT	DIODE SI	
D5508	B0AACK000004	DIODE SI	
D5508	1SS119	DIODE SI	
D5509	MA2C165001VT	DIODE SI	
D5509	B0AACK000004	DIODE SI	
D5509	1SS119	DIODE SI	
D6001	VEKS5708	SENSOR LED UNIT	
D6003	MA2C165001VT	DIODE SI	
D6003	B0AACK000004	DIODE SI	
D6003	1SS119	DIODE SI	
D6005	MA2C165001VT	DIODE SI	

Ref. No.	Part No.	Part Name & Description	Remarks
D6005	B0AACK000004	DIODE SI	
D6005	1SS119	DIODE SI	
D6301	B3AAA0000538	LIGHT EMITTING DIODE RED	
D6302	B3AAA0000538	LIGHT EMITTING DIODE RED	
D6303	B3ABA0000400	LIGHT EMITTING DIODE GREEN	
D6304	B3ACA0000192	LIGHT EMITTING DIODE ORANGE	

RESISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
R3001	ERDS2TJ101	CARBON 1/4W 100	
R3006	ERDS2TJ101	CARBON 1/4W 100	
R3010	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R3016	ERJ6GEYJ121V	MGF CHIP 1/10W 120	
R3017	ERJ6GEYJ331V	MGF CHIP 1/10W 330	
R3024	ERJ6GEYJ391V	MGF CHIP 1/10W 390	
R3025	ERJ6GEYJ125V	MGF CHIP 1/10W 1.2M	
R3026	ERJ6GEYJ474V	MGF CHIP 1/10W 470K	
R3028	ERJ6GEYJ272V	MGF CHIP 1/10W 2.7K	
R3029	ERJ6GEYJ151V	MGF CHIP 1/10W 150	
R3032	ERJ6GEYJ122V	MGF CHIP 1/10W 1.2K	
R3035	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R3036	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R3037	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R3038	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R3076	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R3077	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R3078	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R3079	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R3080	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R3083	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R3084	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R3301	ERJ6GEYJ181V	MGF CHIP 1/10W 180	
R3302	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R3303	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R3304	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R3305	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R3308	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R3309	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R3310	ERJ6GEYJ394V	MGF CHIP 1/10W 390K	
R3312	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R3313	ERJ6GEYJ105V	MGF CHIP 1/10W 1M	
R3314	ERJ6GEYJ182V	MGF CHIP 1/10W 1.8K	
R3315	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R3316	ERJ6GEYJ331V	MGF CHIP 1/10W 330	
R3318	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R3319	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R3320	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R3321	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R3324	ERJ6GEYJ471V	MGF CHIP 1/10W 470	
R3325	ERJ6GEYJ471V	MGF CHIP 1/10W 470	
R3326	ERJ6GEYJ471V	MGF CHIP 1/10W 470	
R3327	ERJ6GEYJ471V	MGF CHIP 1/10W 470	
R3331	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	

Ref. No.	Part No.	Part Name & Description	Remarks
R3332	J0JBC0000022	BEAD INDUCTOR CHIP	
R3333	J0JBC0000022	BEAD INDUCTOR CHIP	
R3334	J0JBC0000022	BEAD INDUCTOR CHIP	
R3341	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R3343	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R3344	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R3345	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R3346	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R3347	ERJ6GEYJ682V	MGF CHIP 1/10W 6.8K	
R3349	ERJ6GEYJ563V	MGF CHIP 1/10W 56K	
R4001	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R4002	ERJ6GEYJ334V	MGF CHIP 1/10W 330K	
R4003	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R4004	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
R4005	ERJ6GEYJ225V	MGF CHIP 1/10W 2.2M	
R4006	ERJ6GEYJ681V	MGF CHIP 1/10W 680	
R4007	ERJ6GEYJ821V	MGF CHIP 1/10W 820	
R4008	ERJ6GEYJ273V	MGF CHIP 1/10W 27K	
R4009	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R4010	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R4011	ERJ6GEYJ682V	MGF CHIP 1/10W 6.8K	
R4012	ERJ6GEYJ682V	MGF CHIP 1/10W 6.8K	
R4014	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R4015	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R4031	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
R4032	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R4051	ERJ6GEYJ393V	MGF CHIP 1/10W 39K	
R4052	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
R4101	ERJ6GEYJ563V	MGF CHIP 1/10W 56K	
R4102	ERJ6GEYJ184V	MGF CHIP 1/10W 180K	
R4103	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
R4172	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R4175	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R5023	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R5028	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R5029	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R5030	ERJ6GEYJ331V	MGF CHIP 1/10W 330	
R5035	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R5036	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
R5037	ERJ6GEYJ271V	MGF CHIP 1/10W 270	
R5038	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R5039	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
R5040	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R5041	ERJ6GEYJ331V	MGF CHIP 1/10W 330	
R5042	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
R5043	ERJ6GEYJ331V	MGF CHIP 1/10W 330	
R5044	ERJ6GEYJ272V	MGF CHIP 1/10W 2.7K	
R5045	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R5102	ERJ6GEYJ470V	MGF CHIP 1/10W 47	
R5103	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R5104	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R5106	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
R5107	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
R5108	ERJ6GEYJ471V	MGF CHIP 1/10W 470	

Ref. No.	Part No.	Part Name & Description	Remarks
R5112	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R5113	ERJ6GEYJ471V	MGF CHIP 1/10W 470	
R5118	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R5121	ERJ6GEYJ301V	MGF CHIP 1/10W 300	
R5122	ERJ6GEYJ471V	MGF CHIP 1/10W 470	
R5124	ERJ6GEYJ331V	MGF CHIP 1/10W 330	
R5127	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
R5128	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
R5130	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R5132	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R5133	ERJ6GEYJ471V	MGF CHIP 1/10W 470	
R5134	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R5135	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R5136	ERJ6GEYJ471V	MGF CHIP 1/10W 470	
R5138	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R5142	ERJ6GEYJ471V	MGF CHIP 1/10W 470	
R5143	ERJ6GEYJ391V	MGF CHIP 1/10W 390	
R5144	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
R5145	ERJ6ENF2200V	MGF CHIP 1/10W 220	
R5146	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R5147	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R5148	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R5150	ERJ6GEYJ471V	MGF CHIP 1/10W 470	
R5152	ERJ6GEYJ680V	MGF CHIP 1/10W 68	
R5153	ERJ6ENF2201V	MGF CHIP 1/10W 2.2K	
R5154	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R5158	ERJ6GEYJ471V	MGF CHIP 1/10W 470	
R5159	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R5160	ERJ6GEYJ471V	MGF CHIP 1/10W 470	
R5161	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R5162	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R5164	ERJ6GEYJ273V	MGF CHIP 1/10W 27K	
R5165	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R5166	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R5167	ERJ6GEYJ181V	MGF CHIP 1/10W 180	
R5169	ERJ6GEYJ124V	MGF CHIP 1/10W 120K	
R5170	ERJ6GEYJ272V	MGF CHIP 1/10W 2.7K	
R5171	ERJ6GEYJ123V	MGF CHIP 1/10W 12K	
R5172	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R5174	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R5178	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R5179	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R5180	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
R5181	ERJ6GEYJ123V	MGF CHIP 1/10W 12K	
R5182	ERJ6GEYJ332V	MGF CHIP 1/10W 3.3K	
R5183	ERJ6GEYJ122V	MGF CHIP 1/10W 1.2K	
R5184	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R5185	ERJ6GEYJ332V	MGF CHIP 1/10W 3.3K	
R5194	ERJ6GEYJ391V	MGF CHIP 1/10W 390	
R5195	ERJ6GEYJ471V	MGF CHIP 1/10W 470	
R5196	ERJ6GEYJ331V	MGF CHIP 1/10W 330	
R5197	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R5198	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R5301	ERJ6GEYJ471V	MGF CHIP 1/10W 470	

Ref. No.	Part No.	Part Name & Description	Remarks
R5302	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R5303	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R5304	ERJ6GEYJ393V	MGF CHIP 1/10W 39K	
R5305	ERJ6GEYJ224V	MGF CHIP 1/10W 220K	
R5306	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R5307	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R5308	ERJ6GEYJ393V	MGF CHIP 1/10W 39K	
R5309	ERJ6GEYJ184V	MGF CHIP 1/10W 180K	
R5311	ERJ6GEYJ331V	MGF CHIP 1/10W 330	
R5312	ERJ6GEYJ331V	MGF CHIP 1/10W 330	
R5313	ERJ6GEYJ331V	MGF CHIP 1/10W 330	
R5314	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R5315	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R5316	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R5317	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R5318	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R5320	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R5324	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R5351	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R5361	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R5401	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
R5402	ERJ6GEYJ394V	MGF CHIP 1/10W 390K	
R5403	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R5405	ERJ6GEYJ822V	MGF CHIP 1/10W 8.2K	
R5406	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R5501	ERJ6GEYJ471V	MGF CHIP 1/10W 470	
R5502	ERJ6GEYJ394V	MGF CHIP 1/10W 390K	
R5503	ERDS2TJ471	CARBON 1/4W 470	
R5504	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R5505	ERJ6ENF3241V	MGF CHIP 1/10W 3.24K	
R5506	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R5507	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
R5508	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
R5510	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R5511	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R5512	ERJ6GEYJ151V	MGF CHIP 1/10W 150	
R5513	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R5515	ERJ6GEYJ272V	MGF CHIP 1/10W 2.7K	
R5516	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R5517	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R5518	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R5604	ERJ6GEYJ332V	MGF CHIP 1/10W 3.3K	
R5902	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R5932	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R5933	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6001	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6002	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6003	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6004	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6005	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6006	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R6007	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6008	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6009	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	

Ref. No.	Part No.	Part Name & Description	Remarks
R6010	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6011	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
R6012	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
R6013	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6014	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6015	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6016	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6017	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6018	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6019	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
R6020	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6021	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6022	ERJ6GEYJ332V	MGF CHIP 1/10W 3.3K	
R6023	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6024	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6025	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R6027	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6028	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R6029	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6030	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6032	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6035	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6040	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6041	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6042	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6043	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6044	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6045	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6046	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6047	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6049	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6050	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6052	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6053	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R6054	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6055	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6056	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6057	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6058	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6059	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R6060	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6061	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6062	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6063	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6064	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6066	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6067	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6077	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6078	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6080	ERJ6GEYJ122V	MGF CHIP 1/10W 1.2K	
R6081	ERJ6GEYJ122V	MGF CHIP 1/10W 1.2K	
R6082	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6085	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6090	ERJ6GEYJ471V	MGF CHIP 1/10W 470	

Ref. No.	Part No.	Part Name & Description	Remarks
R6091	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6092	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6093	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6094	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6098	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
R6099	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
R6100	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
R6113	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R6114	ERJ6GEYJ272V	MGF CHIP 1/10W 2.7K	
R6115	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6116	ERDS2TJ101	CARBON 1/4W 100	
R6118	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R6119	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6120	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R6121	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R6122	ERJ6GEYJ181V	MGF CHIP 1/10W 180	
R6123	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R6124	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6126	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6127	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6130	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6131	ERJ6GEYJ183V	MGF CHIP 1/10W 18K	
R6132	ERJ6GEYJ391V	MGF CHIP 1/10W 390	
R6133	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6134	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6135	ERJ6GEYJ475V	MGF CHIP 1/10W 4.7M	
R6136	ERJ6GEYJ332V	MGF CHIP 1/10W 3.3K	
R6137	ERJ6GEYJ182V	MGF CHIP 1/10W 1.8K	
R6138	ERDS2TJ560T	CARBON 1/4W 56	
R6143	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6144	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R6149	ERJ6GEYJ273V	MGF CHIP 1/10W 27K	
R6150	ERJ6GEYJ273V	MGF CHIP 1/10W 27K	
R6160	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R6161	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R6162	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R6163	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R6164	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R6165	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R6166	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6167	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R6170	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6171	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R6175	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6201	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6202	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R6203	ERJ6GEYJ274V	MGF CHIP 1/10W 270K	
R6204	ERJ6GEYJ184V	MGF CHIP 1/10W 180K	
R6205	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6207	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6208	ERJ6GEYJ152V	MGF CHIP 1/10W 1.5K	
R6209	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R6210	ERJ6GEYJ563V	MGF CHIP 1/10W 56K	
R6211	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	

Ref. No.	Part No.	Part Name & Description	Remarks
R6212	ERJ6GEYJ682V	MGF CHIP 1/10W 6.8K	
R6301	ERJ6GEYJ182V	MGF CHIP 1/10W 1.8K	
R6302	ERJ6GEYJ392V	MGF CHIP 1/10W 3.9K	
R6303	ERJ6GEYJ182V	MGF CHIP 1/10W 1.8K	
R6304	ERJ6GEYJ392V	MGF CHIP 1/10W 3.9K	
R6305	ERJ6GEYJ182V	MGF CHIP 1/10W 1.8K	
R6306	ERJ6GEYJ392V	MGF CHIP 1/10W 3.9K	
R6307	ERJ6GEYJ182V	MGF CHIP 1/10W 1.8K	
R6308	ERJ6GEYJ392V	MGF CHIP 1/10W 3.9K	
R6309	ERJ6GEYJ123V	MGF CHIP 1/10W 12K	
R6316	ERJ6GEY0R00V	MGF CHIP 1/10W 0	

CAPACITORS

Ref. No.	Part No.	Part Name & Description	Remarks
C3002	ECJ2VC1H020C	C CHIP 50V 2PF	
C3003	ECJ2VF1E104Z	C CHIP 25V 0.1UF	
C3004	ECJ2VF1H103Z	C CHIP 50V 0.01UF	
C3006	ECJ2VF1E104Z	C CHIP 25V 0.1UF	
C3007	ECEA0JKA101	ELECTROLYTIC 6.3V 100UF	
C3008	ECJ2VC1H181J	C CHIP 50V 180PF	
C3009	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7UF	
C3010	ECJ2VF1H103Z	C CHIP 50V 0.01UF	
C3013	ECJ2VF1C224Z	C CHIP 16V 0.22UF	
C3015	ECEA0JKA470	ELECTROLYTIC 6.3V 47UF	
C3016	ECEA1CKS100	ELECTROLYTIC 16V 10UF	
C3018	ECEA0JKS101	ELECTROLYTIC 6.3V 100UF	
C3019	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2UF	
C3020	ECEA1CKA220	ELECTROLYTIC 16V 22UF	
C3021	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2UF	
C3022	ECJ2VF1C224Z	C CHIP 16V 0.22UF	
C3023	ECJ2VC1H680J	C CHIP 50V 68PF	
C3024	ECJ2VF1E104Z	C CHIP 25V 0.1UF	
C3025	ECJ2VB1C104K	C CHIP 16V 0.1UF	
C3026	ECJ2VB1H822K	C CHIP 50V 8200PF	
C3027	ECJ2VF1H103Z	C CHIP 50V 0.01UF	
C3028	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2UF	
C3030	ECJ2VF1H103Z	C CHIP 50V 0.01UF	
C3031	ECJ2VF1E104Z	C CHIP 25V 0.1UF	
C3032	ECJ2VF1C474Z	C CHIP 16V 0.47UF	
C3034	ECJ2VC1H181J	C CHIP 50V 180PF	
C3035	ECJ2VC1H330J	C CHIP 50V 33PF	
C3036	ECJ2VF1E104Z	C CHIP 25V 0.1UF	
C3037	ECEA0JKA101	ELECTROLYTIC 6.3V 100UF	
C3038	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C3041	ECJ2VF1H103Z	C CHIP 50V 0.01UF	
C3043	ECJ2VB1H392K	C CHIP 50V 3900PF	
C3044	ECJ2VF1H103Z	C CHIP 50V 0.01UF	
C3045	ECEA1HKAR47	ELECTROLYTIC 50V 0.47UF	
C3046	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2UF	
C3047	ECEA0JKA101	ELECTROLYTIC 6.3V 100UF	
C3048	ECJ2VF1E104Z	C CHIP 25V 0.1UF	
C3050	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2UF	
C3055	ECJ2VF1E104Z	C CHIP 25V 0.1UF	

Ref. No.	Part No.	Part Name & Description	Remarks
C3056	ECJ2VF1E104Z	C CHIP 25V 0.1UF	
C3057	ECJ2VF1E104Z	C CHIP 25V 0.1UF	
C3058	ECJ2VF1H103Z	C CHIP 50V 0.01UF	
C3083	ECJ2VB1H152K	C CHIP 50V 1500PF	
C3084	ECJ2VF1H103Z	C CHIP 50V 0.01UF	
C3231	ECEA1HKA010	ELECTROLYTIC 50V 1UF	
C3232	ECJ2VB1H102K	C CHIP 50V 1000PF	
C3234	ECEA0JKA470	ELECTROLYTIC 6.3V 47UF	
C3235	ECJ2VF1H103Z	C CHIP 50V 0.01UF	
C3236	ECJ2VF1E104Z	C CHIP 25V 0.1UF	
C3237	ECJ2VF1H103Z	C CHIP 50V 0.01UF	
C3303	ECJ2VC1H220J	C CHIP 50V 22PF	
C3304	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C3305	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C3306	ECEA0JKA221	ELECTROLYTIC 6.3V 220UF	
C3307	ECJ2VF1H103Z	C CHIP 50V 0.01UF	
C3308	ECJ2VF1E104Z	C CHIP 25V 0.1UF	
C3309	ECJ2VC1H220J	C CHIP 50V 22PF	
C3310	ECJ2VF1E104Z	C CHIP 25V 0.1UF	
C3311	ECJ2VC1H180J	C CHIP 50V 18PF	
C3313	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2UF	
C3315	ECJ2VB1H102K	C CHIP 50V 1000PF	
C3316	ECJ2VB1H333K	C CHIP 50V 0.033UF	
C3317	ECEA1HKS010	ELECTROLYTIC 50V 1UF	
C3328	ECJ2VC1H220J	C CHIP 50V 22PF	
C4001	ECJ2VF1C224Z	C CHIP 16V 0.22UF	
C4002	ECEA1HKS010	ELECTROLYTIC 50V 1UF	
C4003	ECJ2VB1H272K	C CHIP 50V 2700PF	
C4004	ECJ2VB1H103K	C CHIP 50V 0.01UF	
C4005	ECEA0JKS220	ELECTROLYTIC 6.3V 22UF	
C4006	ECJ2VB1H102K	C CHIP 50V 1000PF	
C4007	ECEA0JKA220	ELECTROLYTIC 6.3V 22UF	
C4008	ECEA0JKA470	ELECTROLYTIC 6.3V 47UF	
C4009	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C4010	ECJ2VB1E333K	C CHIP 25V 0.033UF	
C4011	ECJ2VB1H103K	C CHIP 50V 0.01UF	
C4012	ECEA1HKA010	ELECTROLYTIC 50V 1UF	
C4013	ECEA0JKA470	ELECTROLYTIC 6.3V 47UF	
C4014	ECEA1HKA010	ELECTROLYTIC 50V 1UF	
C4051	ECJ2VB1E333K	C CHIP 25V 0.033UF	
C4102	ECQB1562JF3	POLYESTER 100V 5600PF	
C4103	ECJ2VB1H103K	C CHIP 50V 0.01UF	
C4104	ECJ2VB1H103K	C CHIP 50V 0.01UF	
C4105	ECEA1CKA220	ELECTROLYTIC 16V 22UF	
C4171	ECEA1HKA010	ELECTROLYTIC 50V 1UF	
C5016	ECJ2VF1H103Z	C CHIP 50V 0.01UF	
C5017	ECJ2VF1E104Z	C CHIP 25V 0.1UF	
C5101	ECEA0JKA101	ELECTROLYTIC 6.3V 100UF	
C5102	ECJ2VF1H103Z	C CHIP 50V 0.01UF	
C5103	ECJ2VF1H103Z	C CHIP 50V 0.01UF	
C5104	ECJ2VC1H220J	C CHIP 50V 22PF	
C5106	ECJ2VC1H181J	C CHIP 50V 180PF	
C5109	ECJ2VC1H121J	C CHIP 50V 120PF	
C5110	ECJ2VC1H150J	C CHIP 50V 15PF	

Ref. No.	Part No.	Part Name & Description	Remarks
C5111	ECJ2VC1H181J	C CHIP 50V 180PF	
C5112	ECJ2VF1H103Z	C CHIP 50V 0.01UF	
C5113	ECJ2VC1H680J	C CHIP 50V 68PF	
C5114	ECJ2VF1H103Z	C CHIP 50V 0.01UF	
C5115	ECEA0JKA221	ELECTROLYTIC 6.3V 220UF	
C5116	ECJ2VF1H103Z	C CHIP 50V 0.01UF	
C5117	ECJ2VF1H103Z	C CHIP 50V 0.01UF	
C5118	ECJ2VF1H103Z	C CHIP 50V 0.01UF	
C5119	ECJ2VC1H270J	C CHIP 50V 27PF	
C5120	ECJ2VC1H270J	C CHIP 50V 27PF	
C5121	ECJ2VC1H470J	C CHIP 50V 47PF	
C5122	ECEA1EKA100I	ELECTROLYTIC 25V 10UF	
C5123	ECEA0JKA101	ELECTROLYTIC 6.3V 100UF	
C5124	ECJ2VC1H221J	C CHIP 50V 220P	
C5125	ECJ2VF1H103Z	C CHIP 50V 0.01UF	
C5126	ECEA1HKA010	ELECTROLYTIC 50V 1UF	
C5127	ECJ2VF1H103Z	C CHIP 50V 0.01UF	
C5129	ECJ2VF1H103Z	C CHIP 50V 0.01UF	
C5130	ECEA0JKA221	ELECTROLYTIC 6.3V 220UF	
C5131	ECEA0JKA101	ELECTROLYTIC 6.3V 100UF	
C5132	ECEA1HKN010I	ELECTROLYTIC 50V 1UF	
C5133	ECJ2VF1H103Z	C CHIP 50V 0.01UF	
C5134	ECJ2VF1H103Z	C CHIP 50V 0.01UF	
C5140	ECJ2VC1H150J	C CHIP 50V 15PF	
C5141	ECJ2VC1H680J	C CHIP 50V 68PF	
C5142	ECJ2VC1H121J	C CHIP 50V 120PF	
C5143	ECJ2VC1H181J	C CHIP 50V 180PF	
C5151	ECEA1CKA470	ELECTROLYTIC 16V 47UF	
C5301	ECEA1CKN100	ELECTROLYTIC 16V 10UF	
C5302	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7UF	
C5303	ECEA1HKAR47	ELECTROLYTIC 50V 0.47UF	
C5305	ECEA1HKA010	ELECTROLYTIC 50V 1UF	
C5306	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C5307	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C5308	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C5310	ECJ2VF1H103Z	C CHIP 50V 0.01UF	
C5311	ECJ2VF1H103Z	C CHIP 50V 0.01UF	
C5312	ECJ2VF1H103Z	C CHIP 50V 0.01UF	
C5351	ECJ2VF1H103Z	C CHIP 50V 0.01UF	
C5352	ECJ2VF1H103Z	C CHIP 50V 0.01UF	
C5353	ECJ2VC1H220J	C CHIP 50V 22PF	
C5354	ECJ2VF1H103Z	C CHIP 50V 0.01UF	
C5361	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C5362	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C5363	ECJ2VC1H220J	C CHIP 50V 22PF	
C5364	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C5401	VCUSTBC224KB	C CHIP 16V 0.22UF	
C5402	ECJ2VB1H222K	C CHIP 50V 2200PF	
C5403	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2UF	
C5501	ECJ2VB1E183K	C CHIP 25V 0.018UF	
C5502	ECJ2VB1H681K	C CHIP 50V 680PF	
C5505	ECEA1CKA470	ELECTROLYTIC 16V 47UF	
C5506	ECJ2VF1H103Z	C CHIP 50V 0.01UF	
C5507	ECEA1CKA100	ELECTROLYTIC 16V 10UF	

Ref. No.	Part No.	Part Name & Description	Remarks
C5508	ECUV1H221JSN	C CHIP 50V 220PF	
C5510	ECEA1HKA010	ELECTROLYTIC 50V 1UF	
C5511	ECJ2VB1E333K	C CHIP 25V 0.033UF	
C5516	ECJ2VB1E333K	C CHIP 25V 0.033UF	
C5601	ECJ2VF1H103Z	C CHIP 50V 0.01UF	
C5602	ECJ2VB1E104K	C CHIP 25V 0.1UF	
C5603	ECJ2VC1H150J	C CHIP 50V 15PF	
C5604	ECEA1HKA010	ELECTROLYTIC 50V 1UF	
C5605	ECJ2VB1E153K	C CHIP 25V 0.015UF	
C5902	ECEA1CKA470	ELECTROLYTIC 16V 47UF	
C5903	ECEA1CKA470	ELECTROLYTIC 16V 47UF	
C5904	ECJ2VF1H103Z	C CHIP 50V 0.01UF	
C5905	ECEA0JKA101	ELECTROLYTIC 6.3V 100UF	
C5906	ECJ2VF1H103Z	C CHIP 50V 0.01UF	
C5932	ECJ2VF1H103Z	C CHIP 50V 0.01UF	
C6001	ECEA0JKA331	ELECTROLYTIC 6.3V 330UF	
C6002	ECJ2VC1H080C	C CHIP 50V 8PF	
C6003	ECJ2VC1H100C	C CHIP 50V 10PF	
C6004	ECJ2VB1E104K	C CHIP 25V 0.1UF	
C6006	ECEA0JKA101	ELECTROLYTIC 6.3V 100UF	
C6009	ECEA1CKS100	ELECTROLYTIC 16V 10UF	
C6013	ECJ2VC1H101J	C CHIP 50V 100PF	
C6017	ECJ2VC1H101J	C CHIP 50V 100PF	
C6018	ECJ2VC1H101J	C CHIP 50V 100PF	
C6020	ECJ2VF1E104Z	C CHIP 25V 0.1UF	
C6021	ECEA0JKA101	ELECTROLYTIC 6.3V 100UF	
C6029	ECJ2VF1H104Z	C CHIP 50V 0.1UF	
C6040	ECJ2VB1H102K	C CHIP 50V 1000PF	
C6041	ECJ2VB1H102K	C CHIP 50V 1000PF	
C6044	ECJ2VF1E104Z	C CHIP 25V 0.1UF	
C6201	ECJ2VB1H102K	C CHIP 50V 1000PF	
C6202	ECJ2VB1H103K	C CHIP 50V 0.01UF	
C6203	ECJ2VB1H332K	C CHIP 50V 3300PF	
C6204	ECJ2VB1H103K	C CHIP 50V 0.01UF	
C6207	ECJ2VF1H104Z	C CHIP 50V 0.1UF	
C6208	ECEA1CKS100	ELECTROLYTIC 16V 10UF	
C6209	ECJ2VB1H102K	C CHIP 50V 1000PF	
C6212	ECJ2VF1H104Z	C CHIP 50V 0.1UF	
C6213	ECEA0JKS331I	ELECTROLYTIC 6.3V 330UF	
C6214	ECEA0JKS220	ELECTROLYTIC 6.3V 22UF	
C6215	ECJ2VB1H272K	C CHIP 50V 2700PF	
C6216	ECJ2VB1H103K	C CHIP 50V 0.01UF	
C6220	ECEA1CKA470	ELECTROLYTIC 16V 47UF	
C6221	ECEA0JKA221	ELECTROLYTIC 6.3V 220UF	
C6302	ECJ2VF1H104Z	C CHIP 50V 0.1UF	
C6401	ECJ2VF1H104Z	C CHIP 50V 0.1UF	
C6402	ECEA0JKA101	ELECTROLYTIC 6.3V 100UF	
C6403	ECEA1HKS010	ELECTROLYTIC 50V 1UF	
C6404	ECJ2VC1H121J	C CHIP 50V 120PF	

FILTERS

Ref. No.	Part No.	Part Name & Description	Remarks
FL4051	VLFS0014	FILTER	

COILS

Ref. No.	Part No.	Part Name & Description	Remarks
L3001	G0C390KA0045	COIL 39UH	
L3002	VLQSAB7D101K	COIL 100UH	
L3005	G0C330KA0045	COIL 33UH	
L3010	VLQSAB7D470K	COIL 47UH	
L3231	ELESN221KA	COIL 220UH	
L4001	G0C153K00003	COIL 15MH	
L4002	ELESN101KA	COIL 100UH	
L4004	G0C100KA0045	COIL 10UH	
L4101	ELESN471KA	COIL 470UH	
L5101	ELESN150KA	COIL 15UH	
L5102	ELESN330KA	COIL 33UH	
L5103	ELESN1R5KA	COIL 1.5UH	
L5105	ELESN4R7KA	COIL 4.7UH	
L5107	ELESN470KA	COIL 47UH	
L5109	ELESN101KA	COIL 100UH	
L5110	ELESN6R8KA	COIL 6.8UH	
L5111	ELESN150KA	COIL 15UH	
L5112	G0ZZ00001933	COIL	
L5114	ELESN4R7KA	COIL 4.7UH	
L5115	ELESN6R8KA	COIL 6.8UH	
L5116	ELESN150KA	COIL 15UH	
L5301	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
L5302	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
L5303	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
L5901	ELESN101KA	COIL 100UH	
L6201	ELEXT101KE04	COIL 100UH	
L6401	ELEXT101KE04	COIL 100UH	

CRYSTAL OSCILLATOR

Ref. No.	Part No.	Part Name & Description	Remarks
X3001	VSXS0195	CRYSTAL OSCILLATOR	
X3301	VSXS0238	CRYSTAL OSCILLATOR	
X5501	H2A503300012	CRYSTAL OSCILLATOR	
X5601	VSXS0208-A	CRYSTAL OSCILLATOR	
X6001	VSXS0784	CRYSTAL OSCILLATOR	

PIN HEADERS

Ref. No.	Part No.	Part Name & Description	Remarks
P1201	K1KA13A00061	CONNECTOR 13P	
P3001	K1KA15A00104	CONNECTOR 15P	
P4001	VJSS0888	FE CONNECTOR 2P	
P4002	LSJWM6N120CL	PARALLEL CONNECTOR	
P4004	VJSS0875	CONNECTOR RECEPTACLE 13P	
P4005	K1KB19A00007	CONNECTOR 19P	
P4007	K1KB19A00007	CONNECTOR 19P	
P5301	K1KA06A00220	CONNECTOR 6P	
P5401	K1KA12A00176	CONNECTOR 12P	
P5502	K1KA07A00056	CONNECTOR 7P	
P6002	VJSS0875	CONNECTOR RECEPTACLE 13P	
P6201	K1KA12A00234	PIN HEADER	
P6501	K1KB19A00007	CONNECTOR 19P	

SWITCHES

Ref. No.	Part No.	Part Name & Description	Remarks
SW6001	LSSH0002	LEAF SWITCH-SAFETY TAB	
SW6002	LSSS0008	MODE SWITCH	
SW6301	EVQ21405R	PUSH SWITCH	
SW6302	EVQ21405R	PUSH SWITCH	
SW6303	EVQ21405R	PUSH SWITCH	
SW6304	EVQ21405R	PUSH SWITCH	
SW6305	EVQ21405R	PUSH SWITCH	
SW6306	EVQ21405R	PUSH SWITCH	
SW6307	EVQ21405R	PUSH SWITCH	
SW6308	EVQ21405R	PUSH SWITCH	
SW6309	EVQ21405R	PUSH SWITCH	
SW6310	EVQ21405R	PUSH SWITCH	
SW6311	EVQ21405R	PUSH SWITCH	
SW6312	EVQ21405R	PUSH SWITCH	
SW6313	EVQ21405R	PUSH SWITCH	

TRANSFORMER

Ref. No.	Part No.	Part Name & Description	Remarks
T4101	VLTS0304	TRANSFORMER	

PRINTED CIRCUIT BOARD ASSEMBLY

Ref. No.	Part No.	Part Name & Description	Remarks
E11	VEPS4036B	AUDIO C.B.A.	

MISCELLANEOUS

Ref. No.	Part No.	Part Name & Description	Remarks
154	TMM5439-1	CLAMPER	
711	PNA4611M00HC	INFRARED RECEIVER UNIT	

12.3.2. AUDIO C.B.A.

INTEGRATED CIRCUITS

Ref. No.	Part No.	Part Name & Description	Remarks
IC4201	AN3962FB-V	IC, LINEAR	
IC4351	C0JBAR000292	IC, CMOS STANDARD LOGIC	E.S.D.
IC4351	CD4053BCM	IC, CMOS STANDARD LOGIC	E.S.D.
IC4352	UPC4570G	IC, LINEAR	
IC9001	CXA2064M	IC, LINEAR	
IC9201	AN7420-NT	IC, LINEAR	

TRANSISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
Q4351	2SD0601A0L	TRANSISTOR SI NPN CHIP	
Q4351	B1ABCF000011	TRANSISTOR SI NPN CHIP	
Q4352	2SD0601A0L	TRANSISTOR SI NPN CHIP	
Q4352	B1ABCF000011	TRANSISTOR SI NPN CHIP	
Q4353	UNR221200L	TRANSISTOR SI NPN CHIP	
Q4353	B1GBCFLL0002	TRANSISTOR SI NPN CHIP	
Q4354	UNR211L00L	TRANSISTOR SI PNP CHIP	
Q4355	UNR221L00L	TRANSISTOR SI PNP CHIP	
Q9001	2SD0601A0L	TRANSISTOR SI NPN CHIP	
Q9001	B1ABCF000011	TRANSISTOR SI NPN CHIP	
Q9002	2SD0601A0L	TRANSISTOR SI NPN CHIP	
Q9002	B1ABCF000011	TRANSISTOR SI NPN CHIP	

DIODES

Ref. No.	Part No.	Part Name & Description	Remarks
D4351	MA2C165001VT	DIODE SI	
D4351	B0AACK000004	DIODE SI	
D4351	1SS119	DIODE SI	
D4352	MA4120N-M	DIODE ZENER 12V	
D4353	MA2C165001VT	DIODE SI	
D4353	B0AACK000004	DIODE SI	
D4353	1SS119	DIODE SI	
D4354	MA2C165001VT	DIODE SI	
D4354	B0AACK000004	DIODE SI	
D4354	1SS119	DIODE SI	
D9001	MA2C165001VT	DIODE SI	
D9001	B0AACK000004	DIODE SI	
D9001	1SS119	DIODE SI	

RESISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
R4201	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R4202	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R4203	ERJ6GEYJ511V	MGF CHIP 1/10W 510	
R4204	ERJ6GEYJ511V	MGF CHIP 1/10W 510	
R4205	ERJ6GEYJ393V	MGF CHIP 1/10W 39K	
R4206	ERJ6GEYJ393V	MGF CHIP 1/10W 39K	
R4207	ERJ6GEYJ183V	MGF CHIP 1/10W 18K	
R4208	ERJ6GEYJ183V	MGF CHIP 1/10W 18K	
R4209	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R4210	ERA6YEB153V	MGF CHIP 1/10W 15K	
R4211	ERJ6GEYJ152V	MGF CHIP 1/10W 1.5K	
R4212	ERJ6GEYJ152V	MGF CHIP 1/10W 1.5K	
R4213	ERJ6GEYJ123V	MGF CHIP 1/10W 12K	
R4214	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R4215	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R4216	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R4217	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R4218	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R4219	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R4220	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
R4221	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
R4222	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
R4223	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
R4224	ERJ6GEYJ393V	MGF CHIP 1/10W 39K	
R4225	ERJ6GEYJ183V	MGF CHIP 1/10W 18K	
R4226	ERJ6GEYJ393V	MGF CHIP 1/10W 39K	
R4227	ERJ6GEYJ183V	MGF CHIP 1/10W 18K	
R4228	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R4229	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R4230	ERJ6GEYJ273V	MGF CHIP 1/10W 27K	
R4232	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R4311	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R4312	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R4351	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R4352	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R4353	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R4354	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R4355	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R4356	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R4357	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R4358	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R4359	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R4360	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R4361	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R4362	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R4363	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R4364	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R4365	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R4366	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R4367	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R4368	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R4369	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R4370	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R4371	ERJ6GEYJ101V	MGF CHIP 1/10W 100	

Ref. No.	Part No.	Part Name & Description	Remarks
R9001	EVNCYAA03B14	VARIABLE 10K	
R9002	ERJ6GEYG683V	MGF CHIP 1/10W 68K	
R9003	EVNDCAA03B14	VARIABLE 10K	
R9004	ERJ6GEYJ182V	MGF CHIP 1/10W 1.8K	
R9005	ERJ6GEYJ105V	MGF CHIP 1/10W 1M	
R9006	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R9007	ERJ6GEYJ392V	MGF CHIP 1/10W 3.9K	
R9008	EVMAASA00B53	VARIABLE 5K	
R9009	ERJ6GEYJ332V	MGF CHIP 1/10W 3.3K	
R9010	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R9011	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R9012	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R9017	ERJ6GEYJ821V	MGF CHIP 1/10W 820	
R9018	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R9201	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R9202	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R9203	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R9204	ERJ6GEYJ224V	MGF CHIP 1/10W 220K	
R9205	ERJ6GEYJ332V	MGF CHIP 1/10W 3.3K	
R9206	EVMAASA00B53	VARIABLE 5K	
R9207	ERJ6GEYJ332V	MGF CHIP 1/10W 3.3K	
R9208	ERJ6GEYJ392V	MGF CHIP 1/10W 3.9K	
R9209	ERJ6GEYJ272V	MGF CHIP 1/10W 2.7K	
R9210	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R9211	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R9212	ERJ6GEYJ273V	MGF CHIP 1/10W 27K	
R9213	ERJ6GEYJ273V	MGF CHIP 1/10W 27K	

CAPACITORS

Ref. No.	Part No.	Part Name & Description	Remarks
C4201	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C4202	ECEA1HKA010	ELECTROLYTIC 50V 1UF	
C4203	ECEA1HKA010	ELECTROLYTIC 50V 1UF	
C4204	ECEA1HKA010	ELECTROLYTIC 50V 1UF	
C4205	ECEA1HKA010	ELECTROLYTIC 50V 1UF	
C4206	ECEA1HKA010	ELECTROLYTIC 50V 1UF	
C4207	ECEA1HKA010	ELECTROLYTIC 50V 1UF	
C4208	ECJ2VF1E104Z	C CHIP 25V 0.1UF	
C4209	ECJ2VF1E104Z	C CHIP 25V 0.1UF	
C4210	ECEA0JKA330I	ELECTROLYTIC 6.3V 33UF	
C4211	ECEA0JKA330I	ELECTROLYTIC 6.3V 33UF	
C4212	ECJ2VB1E473K	C CHIP 25V 0.047UF	
C4213	ECJ2VB1E473K	C CHIP 25V 0.047UF	
C4214	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2UF	
C4215	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2UF	
C4216	ECEA0JKA101	ELECTROLYTIC 6.3V 100UF	
C4217	ECEA0JKA101	ELECTROLYTIC 6.3V 100UF	
C4218	ECJ2VB1H153K	C CHIP 50V 0.015UF	
C4219	ECJ2VB1H153K	C CHIP 50V 0.015UF	
C4220	ECJ2VB1H103K	C CHIP 50V 0.01UF	
C4221	ECJ2VB1H103K	C CHIP 50V 0.01UF	
C4223	ECJ2VF1H103Z	C CHIP 50V 0.01UF	
C4224	ECJ2VF1C224Z	C CHIP 16V 0.22UF	

Ref. No.	Part No.	Part Name & Description	Remarks
C4225	ECEA1HKA010	ELECTROLYTIC 50V 1UF	
C4226	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C4227	ECJ2VF1E104Z	C CHIP 25V 0.1UF	
C4228	ECEA0JKA470	ELECTROLYTIC 6.3V 47UF	
C4229	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C4230	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C4231	ECEA1HKA010	ELECTROLYTIC 50V 1UF	
C4232	ECEA1HKA010	ELECTROLYTIC 50V 1UF	
C4351	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C4352	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C4353	ECJ2VF1H103Z	C CHIP 50V 0.01UF	
C4354	ECJ2VF1H103Z	C CHIP 50V 0.01UF	
C4355	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C4356	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C4357	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C4358	ECJ2VF1H103Z	C CHIP 50V 0.01UF	
C4359	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C4360	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C4361	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C4362	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C4363	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C9001	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7UF	
C9002	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7UF	
C9003	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7UF	
C9004	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7UF	
C9005	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C9006	ECEA1HKA010	ELECTROLYTIC 50V 1UF	
C9007	ECJ2VB1H562K	C CHIP 50V 5600PF	
C9008	ECJ2VB1E123K	C CHIP 25V 0.012UF	
C9009	ECEA1EKN4R7I	ELECTROLYTIC 25V 4.7UF	
C9010	ECEA1HKA010	ELECTROLYTIC 50V 1UF	
C9011	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C9012	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C9013	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C9014	ECEA1EKN4R7I	ELECTROLYTIC 25V 4.7UF	
C9015	ECEA1HKA3R3I	ELECTROLYTIC 50V 3.3UF	
C9016	ECEA1EKN4R7I	ELECTROLYTIC 25V 4.7UF	
C9017	ECJ2VB1E473K	C CHIP 25V 0.047UF	
C9018	ECJ2VB1H272K	C CHIP 50V 2700PF	
C9019	ECJ2VF1H103Z	C CHIP 50V 0.01UF	
C9020	ECEA1CKA220	ELECTROLYTIC 16V 22UF	
C9201	ECJ2VF1H103Z	C CHIP 50V 0.01UF	
C9202	ECEA0JKA470	ELECTROLYTIC 6.3V 47UF	
C9203	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C9204	ECQP1H102JZ3	POLYESTER 50V 1000PF	
C9205	ECEA1HKA010	ELECTROLYTIC 50V 1UF	
C9206	ECEA1HKA3R3I	ELECTROLYTIC 50V 3.3UF	
C9207	ECEA1HKA010	ELECTROLYTIC 50V 1UF	
C9208	ECJ2VB1E223K	C CHIP 25V 0.022	
C9209	ECJ2VB1E223K	C CHIP 25V 0.022	
C9210	ECEA1HKA010	ELECTROLYTIC 50V 1UF	
C9211	ECEA1HKA010	ELECTROLYTIC 50V 1UF	

COILS

Ref. No.	Part No.	Part Name & Description	Remarks
L9001	ELESN101KA	COIL 100UH	
L9201	ELESN101KA	COIL 100UH	

PIN HEADERS

Ref. No.	Part No.	Part Name & Description	Remarks
P4201	VJHS0299	PACK PIN 9P	
P4202	VJHS0298	PACK PIN 8P	
P4203	VJHS0298	PACK PIN 8P	
P4204	VJHS0295	PACK PIN 5P	
P4205	VJHS0299	PACK PIN 9P	
P4206	VJHS0297	PACK PIN 7P	
P4207	VJHS0299	PACK PIN 9P	
P4208	VJHS0297	PACK PIN 7P	
P4209	K1KA11B00039	CONNECTOR 11P	

MISCELLANEOUS

Ref. No.	Part No.	Part Name & Description	Remarks
713	VMAS1912	P.C.B. SUPPORT ANGLE	

12.3.3. Hi-Fi AUDIO/VIDEO HEAD AMP C.B.A.

INTEGRATED CIRCUITS

Ref. No.	Part No.	Part Name & Description	Remarks
IC3501	AN3361SB	IC, LINEAR	
IC4401	AN3328S	IC, LINEAR	

RESISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
R3501	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R3502	ERJ6GEYJ560V	MGF CHIP 1/10W 56	
R3503	ERJ6GEYJ560V	MGF CHIP 1/10W 56	
R3504	ERJ6GEYJ560V	MGF CHIP 1/10W 56	
R3505	ERJ6GEYJ560V	MGF CHIP 1/10W 56	
R3506	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
R3507	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
R4405	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R4406	ERJ6GEYJ180V	MGF CHIP 1/10W 18	
R4407	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
R4408	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R4410	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R4411	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	

CAPACITORS

Ref. No.	Part No.	Part Name & Description	Remarks
C3504	ECJ2VF1H103Z	C CHIP 50V 0.01UF	
C3505	ECEA1CKA470	ELECTROLYTIC 16V 47UF	
C3506	ECJ2VF1E104Z	C CHIP 25V 0.1UF	
C3507	ECJ2VB1H102K	C CHIP 50V 1000PF	
C3508	ECJ2VF1E104Z	C CHIP 25V 0.1UF	
C3511	ECJ2VF1E104Z	C CHIP 25V 0.1UF	
C3512	ECJ2VF1E104Z	C CHIP 25V 0.1UF	
C3513	ECJ2VF1E104Z	C CHIP 25V 0.1UF	
C3519	ECJ2VF1E104Z	C CHIP 25V 0.1UF	
C3520	ECJ2VF1E104Z	C CHIP 25V 0.1UF	
C3523	ECJ2VF1E104Z	C CHIP 25V 0.1UF	
C3524	ECJ2VF1E104Z	C CHIP 25V 0.1UF	
C3528	ECJ2VF1E104Z	C CHIP 25V 0.1UF	
C3529	ECJ2VF1H103Z	C CHIP 50V 0.01UF	
C3532	ECJ2VF1E104Z	C CHIP 25V 0.1UF	
C3533	ECJ2VF1H103Z	C CHIP 50V 0.01UF	
C4401	ECJ2VB1H102K	C CHIP 50V 1000PF	
C4402	ECJ2VB1H102K	C CHIP 50V 1000PF	
C4405	ECJ2VF1H103Z	C CHIP 50V 0.01UF	
C4406	ECJ2VB1H472K	C CHIP 50V 4700PF	
C4408	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C4409	ECJ2VF1H103Z	C CHIP 50V 0.01UF	
C4411	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
C4412	ECJ2VF1H104Z	C CHIP 50V 0.1UF	
C4413	ECJ2VF1H104Z	C CHIP 50V 0.1UF	
C4414	ECEA0JKA470	ELECTROLYTIC 6.3V 47UF	

COILS

Ref. No.	Part No.	Part Name & Description	Remarks
L3501	G0C101KA0045	COIL 100UH	
L4401	G0C101KA0045	COIL 100UH	

PIN HEADERS

Ref. No.	Part No.	Part Name & Description	Remarks
P3501	K1KB15B00019	CONNECTOR 15P	

12.3.4. CRT C.B.A.

INTEGRATED CIRCUITS

Ref. No.	Part No.	Part Name & Description	Remarks
IC351	TDA6103Q	IC, LINEAR	

TRANSISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
Q5051	2SC3311AIRTA	TRANSISTOR SI NPN	
Q5051	2SC3311AISTA	TRANSISTOR SI NPN	
Q5051	2SC3311ARA	TRANSISTOR SI NPN	
Q5051	2SC3311ASA	TRANSISTOR SI NPN	
Q5052	2SC3311AIRTA	TRANSISTOR SI NPN	
Q5052	2SC3311AISTA	TRANSISTOR SI NPN	
Q5052	2SC3311ARA	TRANSISTOR SI NPN	
Q5052	2SC3311ASA	TRANSISTOR SI NPN	
Q5053	B1AAGD000011	TRANSISTOR SI NPN	
Q5054	2SB1030ARA	TRANSISTOR SI PNP	
Q5055	2SB1569A-F51	TRANSISTOR SI PNP	
Q5056	B1BABL000019	TRANSISTOR SI NPN	
Q5057	2SA1309AIRTA	TRANSISTOR SI PNP	
Q5057	2SA1309AISTA	TRANSISTOR SI PNP	
Q5057	2SA1309ARA	TRANSISTOR SI PNP	
Q5057	2SA1309ASA	TRANSISTOR SI PNP	
Q5058	2SC3311AIRTA	TRANSISTOR SI NPN	
Q5058	2SC3311AISTA	TRANSISTOR SI NPN	
Q5058	2SC3311ARA	TRANSISTOR SI NPN	
Q5058	2SC3311ASA	TRANSISTOR SI NPN	
Q5061	2SC3311AIRTA	TRANSISTOR SI NPN	
Q5061	2SC3311AISTA	TRANSISTOR SI NPN	
Q5061	2SC3311ARA	TRANSISTOR SI NPN	
Q5061	2SC3311ASA	TRANSISTOR SI NPN	
Q5062	2SC3311AIRTA	TRANSISTOR SI NPN	
Q5062	2SC3311AISTA	TRANSISTOR SI NPN	
Q5062	2SC3311ARA	TRANSISTOR SI NPN	
Q5062	2SC3311ASA	TRANSISTOR SI NPN	

DIODES

Ref. No.	Part No.	Part Name & Description	Remarks
D352	B0AAGP000004	DIODE SI	
D353	B0AAGP000004	DIODE SI	
D354	B0AAGP000004	DIODE SI	

RESISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
R351	ERG1SJW104E	METAL OXIDE 1W 100K	
R352	ERG1SJW104E	METAL OXIDE 1W 100K	
R353	ERG1SJW104E	METAL OXIDE 1W 100K	
R354	ERD25TJ102T	CARBON 1/4W 1K	
R355	ERD25TJ102T	CARBON 1/4W 1K	
R356	ERD25TJ102T	CARBON 1/4W 1K	
R363	ERDS2TJ821	CARBON 1/4W 820	
R364	ERDS2TJ102	CARBON 1/4W 1K	
R365	ERDS2TJ821	CARBON 1/4W 820	
R366	ERDS2TJ102	CARBON 1/4W 1K	
R367	ERDS2TJ821	CARBON 1/4W 820	
R368	ERDS2TJ102	CARBON 1/4W 1K	
R369	ERDS2TJ102	CARBON 1/4W 1K	
R371	ERDS2TJ102	CARBON 1/4W 1K	
R373	ERDS2TJ102	CARBON 1/4W 1K	
R375	ERDS2TJ102	CARBON 1/4W 1K	
R376	ERDS2TJ473	CARBON 1/4W 47K	
R377	ERDS2TJ103	CARBON 1/4W 10K	
R378	ERDS2TJ104	CARBON 1/4W 100K	
R379	ERDS2TJ124	CARBON 1/4W 120K	
R380	ERDS2TJ472	CARBON 1/4W 4.7K	
R385	ERQ12AJ121E	FUSE 1/2W 120	⚠
R386	ERDS2TJ331	CARBON 1/4W 330	
R387	ERDS2TJ331	CARBON 1/4W 330	
R388	ERDS2TJ331	CARBON 1/4W 330	
R5051	ERDS2TJ821	CARBON 1/4W 820	
R5052	ERDS2TJ223	CARBON 1/4W 22K	
R5053	ERDS2TJ332	CARBON 1/4W 3.3K	
R5054	ERDS2TJ431T	CARBON 1/4W 430	
R5056	ERDS2TJ510T	CARBON 1/4W 51	
R5058	ERDS2TJ391	CARBON 1/4W 390	
R5059	ERDS2TJ101	CARBON 1/4W 100	
R5060	ERG12SJW100E	METAL OXIDE 1/2W 10	
R5061	ERQ1ABJP331S	FUSE 1W 330	⚠
R5062	ERDS2TJ330T	CARBON 1/4W 33	
R5063	ERDS2TJ330T	CARBON 1/4W 33	
R5064	ERDS2TJ471	CARBON 1/4W 470	
R5065	ERDS2TJ563T	CARBON 1/4W 56K	
R5066	ERG12SJW471E	METAL OXIDE 1/2W 470	
R5067	ERDS2TJ563T	CARBON 1/4W 56K	
R5068	ERDS2TJ471	CARBON 1/4W 470	
R5069	ERDS2TJ390T	CARBON 1/4W 39	
R5070	ERDS2TJ2R7T	CARBON 1/4W 2.7	
R5071	ERDS2TJ2R7T	CARBON 1/4W 2.7	
R5072	ERDS2TJ390T	CARBON 1/4W 39	
R5073	ERDS2TJ101	CARBON 1/4W 100	
R5074	ERDS2TJ333T	CARBON 1/4W 33K	
R5075	ERDS2TJ101	CARBON 1/4W 100	
R5076	ERDS2TJ101	CARBON 1/4W 100	
R5077	ERDS2TJ561	CARBON 1/4W 560	
R5078	ERDS2TJ101	CARBON 1/4W 100	
R5079	ERDS2TJ472	CARBON 1/4W 4.7K	
R5080	ERDS2TJ331	CARBON 1/4W 330	

Ref. No.	Part No.	Part Name & Description	Remarks
R5081	ERDS2TJ682T	CARBON 1/4W 6.8K	
R5082	ERDS2TJ471	CARBON 1/4W 470	
R5083	ERDS2TJ471	CARBON 1/4W 470	

CAPACITORS

Ref. No.	Part No.	Part Name & Description	Remarks
C354	ECKC3D332KBP	CERAMIC 2KV 3300PF	
C364	ECEA1HKAR22	ELECTROLYTIC 50V 0.22UF	
C365	ECEA1CKN100	ELECTROLYTIC 16V 10UF	
C366	ECA2EM4R7B	ELECTROLYTIC 250V 4.7UF	
C5051	ECKR1H103ZF5	CERAMIC 50V 0.01UF	
C5052	ECA1HM100B	ELECTROLYTIC 50V 10UF	
C5053	ECKR1H103ZF5	CERAMIC 50V 0.01UF	
C5058	ECA2CM470E	ELECTROLYTIC 160V 47UF	
C5059	ECKR2H103ZU	CERAMIC 500V 0.01UF	
C5060	ECKR2H151KB5	CERAMIC 500V 150PF	
C5061	ECA2AM100B	ELECTROLYTIC 100V 10UF	
C5062	ECKR1H103ZF5	CERAMIC 50V 0.01UF	
C5063	ECKR1H151KB5	CERAMIC 50V 150PF	
C5064	ECA1CHG101B	ELECTROLYTIC 16V 100UF	
C5065	ECA1CHG101B	ELECTROLYTIC 16V 100UF	
C5066	ECA1CM221B	ELECTROLYTIC 16V 220UF	
C5068	ECKR1H103ZF5	CERAMIC 50V 0.01UF	
C5069	ECKR1H103ZF5	CERAMIC 50V 0.01UF	

COILS

Ref. No.	Part No.	Part Name & Description	Remarks
L5051	G0ZZ00001933	COIL	
L5053	G0ZZ00001933	COIL	
L5054	G0ZZ00001933	COIL	
L5055	G0ZZ00001933	COIL	

PIN HEADERS

Ref. No.	Part No.	Part Name & Description	Remarks
P351	K1KA06A00220	CONNECTOR 6P	
P352	VEKS5757	CONNECTOR CABLE W/PLUG,DC 220V	
P353	LJP25004A	CRT SOCKET	
P369	K1KA03B00107	CONNECTOR 3P	
P5051	K1KA02A00188	CONNECTOR 2P	

MISCELLANEOUS

Ref. No.	Part No.	Part Name & Description	Remarks
96	TMM7464-1	CLAMPER	
488	XYN3+F6S	SCREW W/WASHER,STEEL	
489	XYN3+F8S	SCREW W/WASHER,STEEL	
761	TUC15717	HEAT SINK	
762	TUC76649-4	HEAT SINK	

12.3.5. TUNER MAIN C.B.A.

INTEGRATED CIRCUITS

Ref. No.	Part No.	Part Name & Description	Remarks
IC9551	UPC4570G	IC,LINEAR	

TRANSISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
Q591	2SC3311AIRTA	TRANSISTOR SI NPN	
Q591	2SC3311AISTA	TRANSISTOR SI NPN	
Q591	2SC3311ARA	TRANSISTOR SI NPN	
Q591	2SC3311ASA	TRANSISTOR SI NPN	
Q801	2SC3311AIRTA	TRANSISTOR SI NPN	
Q801	2SC3311AISTA	TRANSISTOR SI NPN	
Q801	2SC3311ARA	TRANSISTOR SI NPN	
Q801	2SC3311ASA	TRANSISTOR SI NPN	
Q7001	2SB0709A0L	TRANSISTOR SI PNP CHIP	
Q7001	B1ADCF000001	TRANSISTOR SI PNP CHIP	
Q9501	2SD0601A0L	TRANSISTOR SI NPN CHIP	
Q9501	B1ABCF000011	TRANSISTOR SI NPN CHIP	
Q9502	2SD0601A0L	TRANSISTOR SI NPN CHIP	
Q9502	B1ABCF000011	TRANSISTOR SI NPN CHIP	
Q9503	2SD0601A0L	TRANSISTOR SI NPN CHIP	
Q9503	B1ABCF000011	TRANSISTOR SI NPN CHIP	
Q9504	2SD0601A0L	TRANSISTOR SI NPN CHIP	
Q9504	B1ABCF000011	TRANSISTOR SI NPN CHIP	

DIODES

Ref. No.	Part No.	Part Name & Description	Remarks
D591	D4DDD3R00002	THEARMISTOR	⚠
D592	MA2C16700E	DIODE SI	
D592	4148-TA	DIODE SI	
D801	ERZV10V361CS	SURGE ABSORBER	⚠
D802	ERZV10V361CS	SURGE ABSORBER	⚠
D803	MA2C16700E	DIODE SI	
D803	4148-TA	DIODE SI	
D804	B0AAKT000010	DIODE SI	⚠
D805	B0AAKT000010	DIODE SI	⚠
D806	B0AAKT000010	DIODE SI	⚠
D807	B0AAKT000010	DIODE SI	⚠
D9501	MAZ40910MF	DIODE ZENER 9.1V	
D9501	MA4091-MKT	DIODE ZENER 9.1V	
D9501	MA4091-MMKT	DIODE ZENER 9.1V	
D9501	RD9.1ESAB1	DIODE ZENER 9.1V	
D9501	RD9.1ESAB2	DIODE ZENER 9.1V	
D9501	04AZ9.1ZTPA7	DIODE ZENER 9.1V	

RESISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
R591	ERDS2TJ103	CARBON 1/4W 10K	
R592	ERDS2TJ472	CARBON 1/4W 4.7K	
R801	VRESC2TK825T	CARBON 1/2W 8.2M	⚠
R801	VRESC2TK825T	CARBON 1/2W 8.2M	⚠
R802	ERDS2TJ472	CARBON 1/4W 4.7K	
R803	ERDS2TJ103	CARBON 1/4W 10K	
R804	ERF5ZKR82	W FLMPRF 5W 0.82	⚠
R7001	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R7002	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R7003	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R7004	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R7005	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R7006	ERJ6GEYJ271V	MGF CHIP 1/10W 270	
R7007	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R7008	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R9501	ERJ6GEYJ750V	MGF CHIP 1/10W 75	
R9502	ERJ6GEYJ750V	MGF CHIP 1/10W 75	
R9506	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R9508	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R9510	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R9511	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R9517	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R9518	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R9519	ERJ6GEYG271V	MGF CHIP 1/10W 270	
R9525	ERJ6GEYG271V	MGF CHIP 1/10W 270	
R9526	ERJ6GEYJ822V	MGF CHIP 1/10W 8.2K	
R9527	ERJ6GEYJ392V	MGF CHIP 1/10W 3.9K	
R9528	ERJ6GEYG331V	MGF CHIP 1/10W 330	
R9529	ERJ6GEYJ471V	MGF CHIP 1/10W 470	
R9532	ERJ6GEYG101V	MGF CHIP 1/10W 100	
R9545	ERJ6GEYG562V	MGF CHIP 1/10W 5.6K	
R9546	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R9551	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R9552	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R9553	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R9554	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	

CAPACITORS

Ref. No.	Part No.	Part Name & Description	Remarks
C801	ECQU2A823MLA	POLYESTER 250V 0.082UF	⚠
C801	LSCFQ2A823MC	POLYESTER 250V 0.082UF	⚠
C802	J0LE00000023	ARRESTER	⚠
C803	ECKATS103MF	CERAMIC 250V 0.01UF	⚠
C806	ECKWAE472ZED	CERAMIC 250V 4700PF	
C807	ECKWAE472ZED	CERAMIC 250V 4700PF	
C808	ECKWAE472ZED	CERAMIC 250V 4700PF	
C809	ECKWAE472ZED	CERAMIC 250V 4700PF	
C7002	ECJ2VB1H102K	C CHIP 50V 1000PF	
C7006	ECA0JM102B	ELECTROLYTIC 6.3V 1000UF	
C7008	ECJ2VF1H103Z	C CHIP 50V 0.01UF	
C7010	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C9502	ECJ2VF1H103Z	C CHIP 50V 0.01UF	
C9507	ECEA1CKA220	ELECTROLYTIC 16V 22UF	
C9510	ECJ2VF1H103Z	C CHIP 50V 0.01UF	
C9511	ECJ2VF1H103Z	C CHIP 50V 0.01UF	
C9512	ECEA0JKA221	ELECTROLYTIC 6.3V 220UF	
C9518	ECEA1CKA220	ELECTROLYTIC 16V 22UF	
C9519	ECEA1CKA101I	ELECTROLYTIC 16V 100UF	
C9551	ECJ2VC1H101J	C CHIP 50V 100PF	
C9552	ECJ2VC1H101J	C CHIP 50V 100PF	
C9553	ECJ2VF1H103Z	C CHIP 50V 0.01UF	
C9554	ECJ2VF1H103Z	C CHIP 50V 0.01UF	
C9555	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C9556	ECEA1CKA100	ELECTROLYTIC 16V 10UF	

COILS

Ref. No.	Part No.	Part Name & Description	Remarks
L801	ELF21V020A	LINE FILTER	⚠
L802	ELF21V020A	LINE FILTER	⚠
L7002	VLQSAB7D100K	COIL 10UH	
L7101	VLQSAB7D100K	COIL 10UH	
L9515	ELESN101KA	COIL 100UH	
L9551	ELESN101KA	COIL 100UH	

PIN HEADERS

Ref. No.	Part No.	Part Name & Description	Remarks
P801	LSJP0814	CONNECTOR 2P	
P802	VEKS5769	CONNECTOR CABLE W/PLUG,DC 160V	
P803	VEKS5770	CONNECTOR CABLE W/PLUG,AC 120V	
P807	VEKS5767	CONNECTOR CABLE W/PLUG,DC 30V	
P7101	VJPS0772	CONNECTOR PLUG 19P	
P7102	VJPS0772	CONNECTOR PLUG 19P	
P9503	VEKS5763	CONNECTOR CABLE W/PLUG,DC 5V	

FUSE& PROTECTOR

Ref. No.	Part No.	Part Name & Description	Remarks
F801	XBA1F63NU100	FUSE 6.3A 125V/250V	⚠

RELAY

Ref. No.	Part No.	Part Name & Description	Remarks
RL591	TSEH0019	RELAY	⚠
RL801	LSSY0004	RELAY	⚠
RL801	K6B1AGA00042	RELAY,120V	⚠
RL801	TSEH0013	RELAY	⚠
RL801	TSEH1860-1	RELAY	⚠
RL801	TSEH8007	RELAY,120V	⚠

JACKS

Ref. No.	Part No.	Part Name & Description	Remarks
JK9501	K1CB104B0040	S-VIDEO JACK SOCKET	
JK9502	LSJJ0167	AUDIO/VIDEO JACK SOCKET	

MISCELLANEOUS

Ref. No.	Part No.	Part Name & Description	Remarks
154	TMM5439-1	CLAMPER	
741	LSJA0349-FE	AC CORD W/PLUG,120V	⚠
742	K3GE1ZB00003	FUSE HOLDER	
743	ENG36701G	TUNER,UHF/VHF NR	

12.3.6. TV MAIN C.B.A.

INTEGRATED CIRCUITS

Ref. No.	Part No.	Part Name & Description	Remarks
IC451	C1AA00000024	IC, LINEAR	
IC752	AN1358S-E1	IC, LINEAR	
IC850	STR-F6626	IC, LINEAR	⚠
IC851	0N3131-R.KT	IC, LINEAR	⚠
IC851	0N3131-S.KT	IC, LINEAR	⚠
IC852	C0EAS0000026	IC, LINEAR	
IC4501	C1BA00000217	IC, BIPOLAR LINEAR	
IC4601	BD3867S	IC, LOGIC(OTHER)	E.S.D.

TRANSISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
Q431	2SA1309ARSTA	TRANSISTOR SI PNP	
Q501	2SC3941H	TRANSISTOR SI NPN	
Q523	B1ACBM000001	TRANSISTOR SI NPN	
Q523	2SA1767-Q	TRANSISTOR SI NPN	
Q523	2SB1221-Q	TRANSISTOR SI NPN	
Q551	B1BAFR000004	TRANSISTOR SI NPN	⚠
Q571	2SD1819A0L	TRANSISTOR SI NPN CHIP	
Q571	B1ABCF000020	TRANSISTOR SI NPN CHIP	
Q751	2SD1499-PLB	TRANSISTOR SI NPN	
Q751	2SD1499-QLB	TRANSISTOR SI NPN	
Q753	2SA1309AIRTA	TRANSISTOR SI PNP	
Q753	2SA1309AISTA	TRANSISTOR SI PNP	
Q753	2SA1309ARA	TRANSISTOR SI PNP	
Q753	2SA1309ASA	TRANSISTOR SI PNP	
Q754	2SC3311AIRTA	TRANSISTOR SI NPN	
Q754	2SC3311AISTA	TRANSISTOR SI NPN	
Q754	2SC3311ARA	TRANSISTOR SI NPN	
Q754	2SC3311ASA	TRANSISTOR SI NPN	
Q4501	2SD13280TL	TRANSISTOR SI NPN CHIP	
Q4502	2SD13280TL	TRANSISTOR SI NPN CHIP	
Q4503	2SD2159-T	TRANSISTOR SI NPN	
Q4503	2SD1581-T	TRANSISTOR SI NPN	

DIODES

Ref. No.	Part No.	Part Name & Description	Remarks
D401	B0AAML000001	DIODE SI	
D401	1SR139-400	DIODE SI	
D402	MA2C165001VT	DIODE SI	
D402	B0AACK000004	DIODE SI	
D402	1SS119	DIODE SI	
D503	B0HAGP000011	DIODE SI	
D503	B0HAJP000012	DIODE SI	
D503	ERA22-04V1	DIODE SI	
D503	1SR153400T32	DIODE SI	
D506	MAZ42700MF	DIODE ZENER 27V	
D553	B0HAGP000011	DIODE SI	
D553	B0HAJP000012	DIODE SI	
D553	ERA22-04V1	DIODE SI	
D553	1SR153400T32	DIODE SI	
D554	MA2C16700E	DIODE SI	
D554	4148-TA	DIODE SI	
D555	MAZ40680MF	DIODE ZENER 6.8V	
D555	B0BA6R600008	DIODE ZENER 6.8V	
D555	RD6.8ESAB3	DIODE ZENER 6.8V	
D555	04AZ6.8ZTPA7	DIODE ZENER 6.8V	
D558	B0HAGP000011	DIODE SI	
D558	B0HAJP000012	DIODE SI	
D558	ERA22-04V1	DIODE SI	
D558	1SR153400T32	DIODE SI	
D571	RH3F014305	DIODE SI	
D572	RU3ANLFC1	DIODE SI	
D572	B0HAMR000060	DIODE SI	

Ref. No.	Part No.	Part Name & Description	Remarks
D704	MA2C029TAF	DIODE SI	
D752	MA2C165001VT	DIODE SI	
D752	B0AACK000004	DIODE SI	
D752	1SS119	DIODE SI	
D851	B0JAMD000012	DIODE SI	
D851	B0JAGE000001	DIODE SI	
D851	1GWJ43TPA3	DIODE SI	
D852	B0HAJL000001	DIODE SI	
D852	B0HAGP000012	DIODE SI	
D853	B0HAHP000014	DIODE SI	
D853	B0HAJP000007	DIODE SI	
D853	B0HAMP000061	DIODE SI	
D854	B0HAJL000001	DIODE SI	
D854	B0HAGP000012	DIODE SI	
D855	B0HAJL000001	DIODE SI	
D855	B0HAGP000012	DIODE SI	
D856	B0HAJL000001	DIODE SI	
D856	B0HAGP000012	DIODE SI	
D858	B0EALR000005	DIODE SI	
D860	ERB84-009V1	DIODE SI	
D860	EK19V1	DIODE SI	
D4501	MA2C165001VT	DIODE SI	
D4501	B0AACK000004	DIODE SI	
D4501	1SS119	DIODE SI	
D4502	MA2C165001VT	DIODE SI	
D4502	B0AACK000004	DIODE SI	
D4502	1SS119	DIODE SI	

RESISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
R401	ERJ6GEYJ122V	MGF CHIP 1/10W 1.2K	
R402	ERDS2TJ183T	CARBON 1/4W 18K	
R405	ERG1SJ331H	METAL OXIDE 1W 330	
R409	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R410	ERDS2TJ223	CARBON 1/4W 22K	
R411	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R413	ERJ6GEYJ273V	MGF CHIP 1/10W 27K	
R414	ERDS1FJ1R8P	CARBON 1/2W 1.8	⚠
R415	ERDS1FJ1R8P	CARBON 1/2W 1.8	⚠
R422	ERDS2TJ331	CARBON 1/4W 330	
R427	ERDS1FJ1R5P	CARBON 1/2W 1.5	⚠
R431	ERJ6GEYJ821V	MGF CHIP 1/10W 820	
R432	ERJ6GEYJ393V	MGF CHIP 1/10W 39K	
R433	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R434	ERDS2TJ472	CARBON 1/4W 4.7K	
R435	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R436	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R466	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R468	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R470	ERDS1FJ152P	CARBON 1/2W 1.5K	
R501	ERDS2TJ471	CARBON 1/4W 470	
R502	ERDS2TJ561	CARBON 1/4W 560	

Ref. No.	Part No.	Part Name & Description	Remarks
R503	ER0S2THF8661	METAL FILM 1/4W 8.66K	⚠
R503	ER0S2TKF8661	METAL FILM 1/4W 8.66K	⚠
R508	ERDS1FJ1R0P	CARBON 1/2W 1	⚠
R511	ERG2SJ222H	METAL OXIDE 2W 2.2K	
R514	ERDS2TJ102	CARBON 1/4W 1K	
R516	LAR05222J09	W FLMPRF 5W 2.2K	
R519	ERDS2TJ822	CARBON 1/4W 8.2K	
R524	ERDS2TJ103	CARBON 1/4W 10K	
R525	ERDS2TJ473	CARBON 1/4W 47K	
R526	ERX2SJR75H	METAL OXIDE 2W 0.75	⚠
R552	ERDS2TJ472	CARBON 1/4W 4.7K	
R553	ERDS2TJ102	CARBON 1/4W 1K	
R554	ERG2SJ102H	METAL OXIDE 2W 1K	
R555	ERDS2TJ563T	CARBON 1/4W 56K	
R556	ERDS2TJ103	CARBON 1/4W 10K	
R561	ERQ1CJP1R8S	FUSE 16V 1.8A	⚠
R562	ERF5ZK2R2	W FLMPRF 5W 2.2	
R571	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R572	ERDS2TJ561	CARBON 1/4W 560	
R573	ERDS2TJ101	CARBON 1/4W 100	
R574	ERDS2TJ103	CARBON 1/4W 10K	
R585	ERDS2TJ473	CARBON 1/4W 47K	
R586	ERDS2TJ182	CARBON 1/4W 1.8K	
R587	ERDS2TJ123	CARBON 1/4W 12K	
R701	ERQ12AJ101P	FUSE 1/2W 100	⚠
R710	ERQ1CJP6R8S	FUSE 1W 6.8	⚠
R713	ERDS2TJ471	CARBON 1/4W 470	
R714	ERDS2TJ272	CARBON 1/4W 2.7K	
R751	ERDS2TJ101	CARBON 1/4W 100	
R752	ERJ6GEYJ821V	MGF CHIP 1/10W 820	
R753	EVMAASA00B14	VARIABLE 10K	
R755	ERDS2TJ101	CARBON 1/4W 100	
R756	ERDS2TJ152	CARBON 1/4W 1.5K	
R757	ERJ6GEYJ752V	MGF CHIP 1/10W 7.5K	
R758	ERJ6GEYJ823V	MGF CHIP 1/10W 82K	
R759	ERJ6GEYJ683V	MGF CHIP 1/10W 68K	
R760	ERJ6GEYJ474V	MGF CHIP 1/10W 470K	
R761	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R762	ERJ6GEYJ123V	MGF CHIP 1/10W 12K	
R763	EVMAASA00B14	VARIABLE 10K	
R764	ERJ6GEYJ682V	MGF CHIP 1/10W 6.8K	
R765	ERJ6GEYJ182V	MGF CHIP 1/10W 1.8K	
R766	EVMAASA00B14	VARIABLE 10K	
R767	ERJ6GEYJ682V	MGF CHIP 1/10W 6.8K	
R768	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R769	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R771	ERJ6GEYJ332V	MGF CHIP 1/10W 3.3K	
R772	ERJ6GEYJ152V	MGF CHIP 1/10W 1.5K	
R773	ERJ6GEYJ823V	MGF CHIP 1/10W 82K	
R774	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R775	ERJ6GEYJ822V	MGF CHIP 1/10W 8.2K	
R776	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	

Ref. No.	Part No.	Part Name & Description	Remarks
R777	ERJ6GEYJ154V	MGF CHIP 1/10W 150K	
R779	ERJ6GEYJ124V	MGF CHIP 1/10W 120K	
R789	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R791	ERJ6GEYJ822V	MGF CHIP 1/10W 8.2K	
R792	ERJ6GEYJ822V	MGF CHIP 1/10W 8.2K	
R793	ERJ6GEYJ332V	MGF CHIP 1/10W 3.3K	
R794	ERJ6GEYJ152V	MGF CHIP 1/10W 1.5K	
R795	ERJ6GEYJ393V	MGF CHIP 1/10W 39K	
R796	ERJ6GEYJ154V	MGF CHIP 1/10W 150K	
R797	ERJ6GEYJ154V	MGF CHIP 1/10W 150K	
R798	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R799	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R850	ERG2SJ273H	METAL OXIDE 2W 27K	
R851	ERDS2TJ683	CARBON 1/4W 68K	
R852	ERDS2TJ683	CARBON 1/4W 68K	
R854	ERD2FCG681V	FUSE 1/4W 680	⚠
R855	ERJ6GEYJ332V	MGF CHIP 1/10W 3.3K	
R856	ERX2SZJR10P	METAL FILM 2W 0.1	
R857	ERG3SJ333H	METAL OXIDE 3W 33K	
R859	ERJ6GEYJ152V	MGF CHIP 1/10W 1.5K	
R860	D0AF150JA038	CARBON 1/2W 15	
R861	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R862	ERDS2TJ473	CARBON 1/4W 47K	
R866	ERDS2TJ473	CARBON 1/4W 47K	
R4501	ERJ6GEYJ683V	MGF CHIP 1/10W 68K	
R4502	ERJ6GEYJ683V	MGF CHIP 1/10W 68K	
R4503	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R4504	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R4505	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R4506	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R4507	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R4508	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R4509	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R4510	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R4513	ERJ6GEYJ151V	MGF CHIP 1/10W 150	
R4514	ERJ6GEYJ151V	MGF CHIP 1/10W 150	
R4515	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R4516	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R4519	ERDS2TJ4R7	CARBON 1/4W 4.7	
R4520	ERDS2TJ4R7	CARBON 1/4W 4.7	
R4521	ERDS2TJ4R7	CARBON 1/4W 4.7	
R4522	ERDS2TJ4R7	CARBON 1/4W 4.7	
R4523	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
R4601	ERJ6GEYJ105V	MGF CHIP 1/10W 1M	
R4602	ERJ6GEYJ394V	MGF CHIP 1/10W 390K	
R4603	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R4604	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R4605	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R4606	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R4607	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R4608	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R4609	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R4610	ERJ6GEYJ101V	MGF CHIP 1/10W 100	

CAPACITORS

Ref. No.	Part No.	Part Name & Description	Remarks
C401	ECEA1HKAR33B	ELECTROLYTIC 50V 0.33UF	
C402	ECA1CM471B	ELECTROLYTIC 16V 470UF	
C408	ECEA1HGE010B	ELECTROLYTIC 50V 1UF	
C409	ECA1VM221B	ELECTROLYTIC 35V 220UF	
C413	ECQB1104JF3	POLYESTER 200V 0.10UF	
C414	ECA1VM102B	ELECTROLYTIC 35V 1000UF	
C418	ECA1VM221B	ELECTROLYTIC 35V 220UF	
C458	ECQB1H103KF3	POLYESTER 50V 0.01UF	
C459	ECA1VM102B	ELECTROLYTIC 35V 1000UF	
C460	ECA1HM010B	ELECTROLYTIC 50V 1	
C510	ECKR2H681KB5	CERAMIC 500V 680PF	
C513	ECA1HM100B	ELECTROLYTIC 50V 10UF	
C521	ECA1HM100B	ELECTROLYTIC 50V 10UF	
C523	ECA1CM101B	ELECTROLYTIC 16V 100UF	
C524	ECKR3D222KBP	CERAMIC 2KV 1500PF	⚠
C525	ECKR3D152KBP	CERAMIC 2KV 1500PF	⚠
C526	ECQB1H473KF3	POLYESTER 50V 0.047UF	⚠
C552	ECWH16123JVB	POLYESTER 1250V 0.012UF	
C554	ECQF4393JZH	CERAMIC 400V 0.39UF	
C555	ECWH20222JVB	POLYESTER 1250V 2200PF	⚠
C556	ECWF2754JSB	POLYESTER 250V 0.75	
C557	ECWF2334JSB	POLYESTER 500V 0.33UF	
C558	ECA1VM331B	ELECTROLYTIC 35V 330UF	
C559	ECWF2474JSB	POLYESTER 250V 0.47UF	
C560	ECA2EM100B	ELECTROLYTIC 250V 10UF	⚠
C561	ECA1HM4R7B	ELECTROLYTIC 50V 4.7UF	
C562	ECA1HM2R2B	ELECTROLYTIC 50V 2.2UF	
C563	ECKR2H681KB5	CERAMIC 500V 680PF	
C575	ECA160V33UE	ELECTROLYTIC 160V 33UF	
C576	ECKW3D102KBP	CERAMIC 2KV 1000PF	⚠
C703	ECQE1685KFB	POLYESTER 100V 0.68UF	
C704	ECQE2474KFB	POLYESTER 250V 0.47	
C761	ECJ2VF1H103Z	C CHIP 50V 0.01UF	
C762	ECA1CM470B	ELECTROLYTIC 16V 47UF	
C763	VCUSTBC224KB	C CHIP 16V 0.22UF	
C764	ECJ2VB1H102K	C CHIP 50V 1000PF	
C765	ECEA1HKAR33B	ELECTROLYTIC 50V 0.33UF	
C768	ECJ2VB1H103K	C CHIP 50V 0.01UF	
C792	ECJ2VB1E104K	C CHIP 25V 0.1UF	
C793	ECJ2VB1E104K	C CHIP 25V 0.1UF	
C794	ECA1VM470B	ELECTROLYTIC 35V 47UF	
C795	ECA1EM471B	ELECTROLYTIC 25V 470	
C850	ECA1HHG470B	ELECTROLYTIC 50V 47UF	
C851	ECKR1H102KB	CERAMIC 50V 0.001UF	
C852	ECKR1H471KB5	CERAMIC 50V 470PF	
C853	ECEC2DP821CB	ELECTROLYTIC 200V 820UF	⚠
C853	EC0S2DP821CB	ELECTROLYTIC 200V 820UF	⚠
C854	ECKR2H221KB5	CERAMIC 500V 220PF	

Ref. No.	Part No.	Part Name & Description	Remarks
C855	ECA2DHG4R7B	ELECTROLYTIC 200V 4.7UF	
C856	F1B3D222A010	CERAMIC 25V 2200PF	
C857	ECJ2VB1H122K	C CHIP 50V 1200P	
C858	ECJ2VB1E223K	C CHIP 25V 0.022	
C859	F1B2E102A012	CERAMIC 250V 1000PF	⚠
C859	ECKNTS222ME	CERAMIC 125V 2200PF	⚠
C859	F1B2E102A011	CERAMIC 250V 1000PF	⚠
C859	F1B2E102A044	CERAMIC 250V 1000PF	⚠
C859	F1B2E102A045	CERAMIC 250V 1000PF	⚠
C859	F1B2E1020005	CERAMIC 250V 1000PF	⚠
C859	F1B2E1020006	CERAMIC 250V 1000PF	⚠
C861	F1B3A102A009	CERAMIC 25V 1000PF	
C867	EEUFD1V331LB	ELECTROLYTIC 35V 330UF	
C868	EC0S2DA471BB	ELECTROLYTIC 200V 470UF	⚠
C872	EEUFD1V331LB	ELECTROLYTIC 35V 330UF	
C873	EEUFD1V331LB	ELECTROLYTIC 35V 330UF	
C4501	ECA1CM101B	ELECTROLYTIC 16V 100UF	
C4502	ECA1CM101B	ELECTROLYTIC 16V 100UF	
C4503	ECJ2VB1H222K	C CHIP 50V 2200PF	
C4504	ECJ2VB1H222K	C CHIP 50V 2200PF	
C4505	ECJ2VB1H222K	C CHIP 50V 2200PF	
C4506	ECJ2VB1H222K	C CHIP 50V 2200PF	
C4507	ECA1HM4R7B	ELECTROLYTIC 50V 4.7UF	
C4508	ECA1HM4R7B	ELECTROLYTIC 50V 4.7UF	
C4509	ECA1EM470B	ELECTROLYTIC 25V 47UF	
C4510	ECA1EM470B	ELECTROLYTIC 25V 47UF	
C4511	ECQB1H104KF	POLYESTER 50V 0.1UF	
C4512	ECQB1H104KF	POLYESTER 50V 0.1UF	
C4513	ECA1CM102B	ELECTROLYTIC 16V 1000UF	
C4514	ECA1CM102B	ELECTROLYTIC 16V 1000UF	
C4515	ECA1EM101B	ELECTROLYTIC 25V 100UF	
C4516	ECA1EM102B	ELECTROLYTIC 25V 1000UF	
C4518	ECA1EM471B	ELECTROLYTIC 25V 470UF	
C4519	ECA1EM101B	ELECTROLYTIC 25V 100UF	
C4520	ECA1EM101B	ELECTROLYTIC 25V 100UF	
C4525	ECJ2VF1H103Z	C CHIP 50V 0.01UF	
C4601	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7UF	
C4602	ECA1CM100B	ELECTROLYTIC 16V 10UF	
C4603	ECJ2VB1E683K	C CHIP 25V 0.068UF	
C4604	ECJ2VB1H102K	C CHIP 50V 1000PF	
C4605	ECA1CM100B	ELECTROLYTIC 16V 10UF	
C4606	ECA1CM100B	ELECTROLYTIC 16V 10UF	
C4612	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7UF	
C4613	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7UF	
C4614	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7UF	
C4615	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7UF	
C4616	ECJ2VF1E104Z	C CHIP 25V 0.1UF	
C4617	ECJ2VF1E104Z	C CHIP 25V 0.1UF	
C4618	ECA1CM100B	ELECTROLYTIC 16V 10UF	
C4619	ECJ2VB1H102K	C CHIP 50V 1000PF	
C4620	ECJ2VB1E683K	C CHIP 25V 0.068UF	

Ref. No.	Part No.	Part Name & Description	Remarks
C4621	ECA1CM100B	ELECTROLYTIC 16V 10UF	
C4622	ECA1CM100B	ELECTROLYTIC 16V 10UF	
C4623	ECA1CM471B	ELECTROLYTIC 16V 470UF	

COILS

Ref. No.	Part No.	Part Name & Description	Remarks
L551	ELH5L6141	COIL	⚠
L552	J0JKA0000015	COIL	
L554	ELH5L8106	COIL	⚠
L701	LSLQC15D821K	COIL 820UH	
L703	LSLQC15D821K	COIL 820UH	
L704	LSLQA10R682J	COIL 6800UH	
L851	J0JKA0000015	COIL	
L852	J0JHB0000021	FILTER	
L853	J0JKA0000015	COIL	
L855	J0JHB0000021	FILTER	
L858	VLQSAB7D220K	COIL 22UH	
L859	J0JHB0000021	FILTER	
L860	VLQSAB7D220K	COIL 22UH	
L4501	VLQSAB7D680K	COIL 68UH	
L4601	G0C101KA0045	COIL 100UH	

PIN HEADERS

Ref. No.	Part No.	Part Name & Description	Remarks
P501	K1KA12A00176	CONNECTOR 12P	
P502	K1KA07A00056	CONNECTOR 7P	
P503	K1KA06A00112	CONNECTOR 6P	
P850	K1KA02A00110	CONNECTOR 2P	
P852	VEKS5800	CONNECTOR CABLE W/PLUG,0V	
P4501	K1KA02A00229	CONNECTOR 2P	
P4502	VEKS5798	CONNECTOR CABLE W/PLUG,DC22V	
P4503	K1KA02A00229	CONNECTOR 2P	
P4506	K1KA04A00242	CONNECTOR 4P	
P4603	VEKS5762	CONNECTOR CABLE W/PLUG,DC 9V	
P6299	K1KA05A00177	CONNECTOR 5P	

FUSE& PROTECTOR

Ref. No.	Part No.	Part Name & Description	Remarks
PR850	UNH000600A	IC PROTECTOR 1.5A	⚠
PR850	B1ZAZ0000040	IC PROTECTOR 1.5A	⚠
PR850	LSSF009A25E	IC PROTECTOR 1.5A	⚠

TRANSFORMER

Ref. No.	Part No.	Part Name & Description	Remarks
T501	ETH19Y70AY	TRANSFORMER	
T551	KFT4AA413F	FLYBACK TRANSFORMER	⚠
T850	ETS39AG2P5AC	TRANSFORMER	⚠

MISCELLANEOUS

Ref. No.	Part No.	Part Name & Description	Remarks
155	TMM76403-1	CLAMPER	
293	TMM76455	PURSE LOCK CLAMPER	
443	XTV4+12A	TAPPING SCREW,STEEL	
483	XYN3+F10S	SCREW W/WASHER,STEEL	
484	XTW3+10J	TAPPING SCREW,STEEL	
485	XYE3+EJ10	SCREW W/WASHER,STEEL	
486	XYN3+F12S	SCREW,STEEL	
751	LML69001A	ANODE LEAD CLAMPER	
752	LSMA0444	HEAT SINK	
753	LSSC0256	HEAT SINK	
754	LSSC0438	HEAT SINK	
755	TMM16480-1	CLAMPER	
765	LSSC0254	HEAT SINK	

12.3.7. POWER SUPPLY C.B.A.

INTEGRATED CIRCUITS

Ref. No.	Part No.	Part Name & Description	Remarks
IC1001	0N3131-R.KT	IC, LINEAR	⚠
IC1001	0N3131-S.KT	IC, LINEAR	⚠
IC1002	TA76431ASTP6	IC, LINEAR	
IC1002	C0DAEMZ00001	IC, LINEAR	
IC1002	B1AZKD000001	IC, LINEAR	
IC1502	0N3131-R.KT	IC, LINEAR	⚠
IC1502	0N3131-S.KT	IC, LINEAR	⚠
IC1503	TA76431ASTP6	IC, LINEAR	
IC1503	C0DAEMZ00001	IC, LINEAR	
IC1503	B1AZKD000001	IC, LINEAR	
IC4751	T0TX178A	IC, CMOS STANDARD LOGIC	E.S.D.

TRANSISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
Q1001	2SC4559LP.KT	TRANSISTOR SI NPN	⚠
Q1001	2SC4130LF608	TRANSISTOR SI NPN	⚠
Q1002	2SD1458	TRANSISTOR SI NPN	
Q1002	2SD225900A	TRANSISTOR SI NPN	
Q1051	2SD2375-PQ	TRANSISTOR SI NPN	
Q1051	B1BACG000020	TRANSISTOR SI NPN	
Q1052	2SD601-RS	TRANSISTOR SI NPN CHIP	
Q1052	B1ABCF000011	TRANSISTOR SI NPN CHIP	
Q1053	2SD235800A	TRANSISTOR SI NPN CHIP	
Q1053	B1AAQB000002	TRANSISTOR SI NPN CHIP	
Q1054	2SD235800A	TRANSISTOR SI NPN CHIP	
Q1054	B1AAQB000002	TRANSISTOR SI NPN CHIP	
Q1070	2SB0709A0L	TRANSISTOR SI PNP CHIP	
Q1070	B1ADCF000001	TRANSISTOR SI PNP CHIP	
Q1071	2SD225900A	TRANSISTOR SI NPN	
Q1501	2SD0601A0L	TRANSISTOR SI NPN CHIP	
Q1501	B1ABCF000011	TRANSISTOR SI NPN CHIP	
Q1502	2SD1458	TRANSISTOR SI NPN	
Q1502	2SD225900A	TRANSISTOR SI NPN	
Q1503	2SC4533LP.KT	TRANSISTOR SI NPN	⚠
Q1503	2SC5130LF608	TRANSISTOR SI NPN	⚠
Q1504	2SD2375-PQ	TRANSISTOR SI NPN	
Q1504	B1BACG000020	TRANSISTOR SI NPN	
Q1505	2SD601-RS	TRANSISTOR SI NPN CHIP	
Q1505	B1ABCF000011	TRANSISTOR SI NPN CHIP	

DIODES

Ref. No.	Part No.	Part Name & Description	Remarks
D1001	B0EDKR000004	DIODE SI	⚠
D1002	B0AAGP000001	DIODE SI	
D1002	B0HAJP000007	DIODE SI	
D1003	B0AAGP000001	DIODE SI	
D1005	B0AAGP000001	DIODE SI	
D1005	B0HAJP000007	DIODE SI	
D1006	ERC30-01L3	DIODE SI	
D1006	B0HANL000012	DIODE SI	
D1006	RGP15GL-5088	DIODE SI	
D1008	ERC81-006L44	DIODE SI	
D1009	B0AAGP000001	DIODE SI	
D1009	B0HAJP000007	DIODE SI	
D1010	MAZ43000MF	DIODE ZENER 30V	
D1015	MA2180LA	DIODE ZENER 18V	⚠
D1015	1N4746A-T	DIODE ZENER 18V	⚠
D1015	1N4746ARL	DIODE ZENER 18V	⚠
D1017	MA2C165001VT	DIODE SI	
D1017	B0AACK000004	DIODE SI	
D1017	1SS119	DIODE SI	
D1052	MA4100N	DIODE ZENER 10V	
D1052	RD10JSAB3	DIODE ZENER 10V	
D1053	MA2C165001VT	DIODE SI	

Ref. No.	Part No.	Part Name & Description	Remarks
D1053	B0AACK000004	DIODE SI	
D1053	1SS119	DIODE SI	
D1054	MA2C165001VT	DIODE SI	
D1054	B0AACK000004	DIODE SI	
D1054	1SS119	DIODE SI	
D1501	MA2C16700E	DIODE SI	
D1501	4148-TA	DIODE SI	
D1502	B0EDKR000004	DIODE SI	⚠
D1503	B0AAGP000001	DIODE SI	
D1504	MA2C165001VT	DIODE SI	
D1504	B0AACK000004	DIODE SI	
D1504	1SS119	DIODE SI	
D1505	B0AAGP000001	DIODE SI	
D1505	B0HAJP000007	DIODE SI	
D1506	ERC81-006L44	DIODE SI	
D1507	ERB32-01L3	DIODE SI	
D1507	B0HAML000014	DIODE SI	
D1507	RGP15L-5088	DIODE SI	
D1508	B0AAGP000001	DIODE SI	
D1508	B0HAJP000007	DIODE SI	
D1509	MA2180LA	DIODE ZENER 18V	⚠
D1509	1N4746A-T	DIODE ZENER 18V	⚠
D1509	1N4746ARL	DIODE ZENER 18V	⚠
D1511	MA4100N	DIODE ZENER 10V	
D1511	RD10JSAB3	DIODE ZENER 10V	
D1512	MA2C165001VT	DIODE SI	
D1512	B0AACK000004	DIODE SI	
D1512	1SS119	DIODE SI	
D1513	MA2C165001VT	DIODE SI	
D1513	B0AACK000004	DIODE SI	
D1513	1SS119	DIODE SI	
D1514	MA2C165001VT	DIODE SI	
D1514	B0AACK000004	DIODE SI	
D1514	1SS119	DIODE SI	

RESISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
R1001	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R1002	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R1003	D0AF154JA038	CARBON 1/2W 150K	
R1004	ERG2SJ333H	METAL OXIDE 2W 33K	
R1005	ERG1SJ680P	METAL OXIDE 1W 68	
R1006	ERJ6GEY0R00V	MGF CHIP 1/10W 0	
R1007	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R1008	ERJ6GEYJ152V	MGF CHIP 1/10W 1.5K	
R1009	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R1010	ERD25FJ100P	CARBON 1/4W 10	⚠
R1010	ERD25FPJ100P	CARBON 1/4W 10	⚠
R1010	VRESF4FJ100P	CARBON 1/4W 10	⚠
R1012	D1BD2431A016	MGF CHIP 1/10W 2.43K	
R1013	D0HD222ZA002	MGF CHIP 1/10W 2.2K	
R1025	D0AF150JA038	CARBON 1/2W 15	
R1051	ERDS2TJ331	CARBON 1/4W 330	
R1052	ERDS2TJ331	CARBON 1/4W 330	
R1053	ERDS2TJ153	CARBON 1/4W 15K	
R1054	ERDS2TJ153	CARBON 1/4W 15K	
R1055	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R1056	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R1057	ERJ6GEYJ122V	MGF CHIP 1/10W 1.2K	
R1070	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R1071	ERJ6GEYJ154V	MGF CHIP 1/10W 150K	
R1072	ERDS2TJ152	CARBON 1/4W 1.5K	
R1073	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R1501	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R1502	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R1503	ERJ6GEYJ392V	MGF CHIP 1/10W 3.9K	
R1504	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R1505	D0AF334JA038	CARBON 1/2W 330K	
R1506	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R1507	ERG1SJ560P	METAL OXIDE 1W 56	
R1508	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R1509	ERG2SJ333H	METAL OXIDE 2W 33K	
R1510	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R1511	D0AF150JA038	CARBON 1/2W 15	
R1512	D1BD2431A016	MGF CHIP 1/10W 2.43K	
R1513	D0HD222ZA002	MGF CHIP 1/10W 2.2K	
R1514	ERD25FJ100P	CARBON 1/4W 10	⚠
R1514	ERD25FPJ100P	CARBON 1/4W 10	⚠
R1514	VRESF4FJ100P	CARBON 1/4W 10	⚠
R1515	D0AF152JA038	CARBON 1/2W 1.5K	
R1517	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R1519	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R1520	ERJ6GEYJ331V	MGF CHIP 1/10W 330	

CAPACITORS

Ref. No.	Part No.	Part Name & Description	Remarks
C1001	ECKATS103MF	CERAMIC 250V 0.01UF	⚠
C1001	ECKETS103MF	CERAMIC 125V 0.01UF	⚠
C1001	VCKSEKD103PZ	CERAMIC 125V 0.01UF	⚠
C1001	VCKSEMD103PZ	CERAMIC 125V 0.01UF	⚠
C1001	VCKST3G103MY	CERAMIC 250V 0.01UF	⚠
C1001	VCKSU3D103MY	CERAMIC 125V 0.01UF	⚠
C1002	ECKATS332ME8	CERAMIC 250V 3300PF	⚠
C1002	ECKDNB332ME8	CERAMIC 125V 3300PF	⚠
C1002	ECKETS332ME8	CERAMIC 125V 3300PF	⚠
C1002	VCKSEKD332MY	CERAMIC 125V 3300PF	⚠
C1002	VCKSEVD332MY	CERAMIC 125V 3300PF	⚠
C1002	VCKST3G332MX	CERAMIC 250V 3300PF	⚠
C1002	VCKSU3D332MX	CERAMIC 125V 3300PF	⚠
C1003	F1B2E102A012	CERAMIC 250V 1000PF	⚠
C1004	ECEA2DU121YE	ELECTROLYTIC 200V 120UF	⚠
C1004	F2A2D1210003	ELECTROLYTIC 200V 120UF	⚠
C1004	VCESR2D121XE	ELECTROLYTIC 200V 120UF	⚠
C1005	ECA2DHG4R7B	ELECTROLYTIC 200V 4.7UF	
C1006	ECKR2H221KB5	CERAMIC 500V 220PF	
C1007	F1K1E105A029	C CHIP 25V 1UF	
C1009	VCYSBRE183KX	CERAMIC 25V 0.018UF	
C1010	ECJ2VB1H102K	C CHIP 50V 1000PF	
C1011	ECA1HHG470B	ELECTROLYTIC 50V 47UF	
C1012	ECEA1PEE102	ELECTROLYTIC 18V 1000UF	
C1013	ECEA1PEE102	ELECTROLYTIC 18V 1000UF	
C1016	ECEA0JEE122	ELECTROLYTIC 6.3V 1200UF	
C1017	ECA0JM102B	ELECTROLYTIC 6.3V 1000UF	
C1019	ECEA0JEE101B	ELECTROLYTIC 6.3V 100UF	
C1021	ECJ2VB1E104K	C CHIP 25V 0.1UF	
C1025	F1B2E101A009	CERAMIC 250V 100PF	⚠
C1029	ECJ2VC1H101J	C CHIP 50V 100PF	
C1030	VCYSBRE183KX	CERAMIC 25V 0.018UF	
C1032	ECA0JM102B	ELECTROLYTIC 6.3V 1000UF	
C1051	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C1055	ECEA1CKA470	ELECTROLYTIC 16V 47UF	
C1056	ECEA1CKA470	ELECTROLYTIC 16V 47UF	
C1059	ECEA0JEE101B	ELECTROLYTIC 6.3V 100UF	
C1060	ECEA0JEE101B	ELECTROLYTIC 6.3V 100UF	
C1061	ECEA1HKG2R2B	ELECTROLYTIC 50V 2.2UF	
C1062	ECJ2VB1H221K	C CHIP 50V 220PF	
C1064	ECA1HM220B	ELECTROLYTIC 50V 22UF	
C1070	ECEA1CKA101	ELECTROLYTIC 16V 100UF	
C1501	F1B2E101A009	CERAMIC 250V 100PF	⚠
C1502	ECKATS103MF	CERAMIC 250V 0.01UF	⚠
C1502	ECKETS103MF	CERAMIC 125V 0.01UF	⚠
C1502	VCKSEKD103PZ	CERAMIC 125V 0.01UF	⚠

Ref. No.	Part No.	Part Name & Description	Remarks
C1502	VCKSEMD103PZ	CERAMIC 125V 0.01UF	⚠
C1502	VCKST3G103MY	CERAMIC 250V 0.01UF	⚠
C1502	VCKSU3D103MY	CERAMIC 125V 0.01UF	⚠
C1503	ECKATS332ME8	CERAMIC 250V 3300PF	⚠
C1503	ECKDNB332ME8	CERAMIC 125V 3300PF	⚠
C1503	ECKETS332ME8	CERAMIC 125V 3300PF	⚠
C1503	VCKSEKD332MY	CERAMIC 125V 3300PF	⚠
C1503	VCKSEVD332MY	CERAMIC 125V 3300PF	⚠
C1503	VCKST3G332MX	CERAMIC 250V 3300PF	⚠
C1503	VCKSU3D332MX	CERAMIC 125V 3300PF	⚠
C1504	F1B2E102A012	CERAMIC 250V 1000PF	⚠
C1505	VCYSBRE183KX	CERAMIC 25V 0.018UF	
C1506	ECEA2DU820YE	ELECTROLYTIC 200V 82UF	⚠
C1506	F2A2D8200003	ELECTROLYTIC 200V 82UF	⚠
C1506	VCESR2D820XE	ELECTROLYTIC 200V 82UF	⚠
C1507	F1K1H2240002	C CHIP 50V 0.22UF	
C1508	ECKR2H221KB5	CERAMIC 500V 220PF	
C1509	VCYSBRE183KX	CERAMIC 25V 0.018UF	
C1510	ECJ2VB1E104K	C CHIP 25V 0.1UF	
C1511	ECA2DHG4R7B	ELECTROLYTIC 200V 4.7UF	
C1513	ECJ2VC1H101J	C CHIP 50V 100PF	
C1514	ECEA0JEE122	ELECTROLYTIC 6.3V 1200UF	
C1515	ECEA1PEE331	ELECTROLYTIC 18V 330UF	
C1516	ECA1HHG470B	ELECTROLYTIC 50V 47UF	
C1517	ECA1EM331B	ELECTROLYTIC 25V 330UF	
C1518	ECEA0JEE122	ELECTROLYTIC 6.3V 1200UF	
C1520	ECEA1HKAR47	ELECTROLYTIC 50V 0.47UF	
C1521	ECJ2VC1H270J	C CHIP 50V 27PF	
C1522	ECJ2VB1E104K	C CHIP 25V 0.1UF	
C1523	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7UF	
C1528	ECEA1PEE102	ELECTROLYTIC 18V 1000UF	

COILS

Ref. No.	Part No.	Part Name & Description	Remarks
L1001	ELF15N005A	LINE FILTER 0.5A 18MH	⚠
L1001	G0B183D00001	LINE FILTER 0.5A 18MH	⚠
L1001	J0HBLD000001	LINE FILTER 0.5A 18MH	⚠
L1001	VLQS0167	LINE FILTER 0.5A 18MH	⚠
L1001	VLQS0170	LINE FILTER 0.6A 18MH	⚠
L1002	VLQS0165	COIL 22UH	
L1003	VLQS0164	COIL 9UH	
L1006	VLPS0005A	BEAD INDUCTOR	
L1009	ERDS2TJ102	CARBON 1/4W 1K	
L1501	ELF15N005A	LINE FILTER 0.5A 18MH	⚠
L1501	G0B183D00001	LINE FILTER 0.5A 18MH	⚠
L1501	J0HBLD000001	LINE FILTER 0.5A 18MH	⚠
L1501	VLQS0167	LINE FILTER 0.5A 18MH	⚠
L1501	VLQS0170	LINE FILTER 0.6A 18MH	⚠
L1504	VLQS0164	COIL 9UH	
L1505	VLQSAB7D220K	COIL 22UH	
L1506	VLPS0005A	BEAD INDUCTOR	
L1510	J0JBC0000019	BEAD INDUCTOR CHIP 2.5K	
L1511	ELESN220KA	COIL 22UH	
L1512	LSLF0035	EMI FILTER CHIP	

PIN HEADERS

Ref. No.	Part No.	Part Name & Description	Remarks
P1001	LSJP0814	CONNECTOR 2P	
P1002	K1KA13A00061	CONNECTOR 13P	
P1003	K1KA09A00099	CONNECTOR 9P	
P1501	VJSS0874	CONNECTOR 11P	
P1503	VEKS5801	CONNECTOR CABLE W/PLUG,DC12V	

FUSE& PROTECTOR

Ref. No.	Part No.	Part Name & Description	Remarks
F1001	VSFS0003A16	FUSE 125V 1.6A	⚠
F1001	K5D162AB0003	FUSE 125V 1.6A	⚠
F1001	K5D162ADA001	FUSE 125V 1.6A	⚠
F1001	K5D162AQ0004	FUSE 125V 1.6A	⚠
F1501	VSFS0003A16	FUSE 125V 1.6A	⚠
F1501	K5D162AB0003	FUSE 125V 1.6A	⚠
F1501	VSFS0032B16	FUSE 125V 1.6A	⚠
PR1001	LSSF009A35E	IC PROTECTOR	⚠
PR1002	UNH000600A	IC PROTECTOR 1.5A	⚠
PR1002	B1ZAZ0000040	IC PROTECTOR 1.5A	⚠
PR1002	LSSF009A25E	IC PROTECTOR 1.5A	⚠
PR1003	LSSF009AR37E	IC PROTECTOR 1.5A	⚠
PR1501	UNH000600A	IC PROTECTOR 1.5A	⚠
PR1501	B1ZAZ0000040	IC PROTECTOR 1.5A	⚠
PR1501	LSSF009A25E	IC PROTECTOR 1.5A	⚠
PR1502	LSSF009A35E	IC PROTECTOR	⚠

RELAY

Ref. No.	Part No.	Part Name & Description	Remarks
RL1501	LSSY0004	RELAY	⚠
RL1501	K6B1AGA00042	RELAY,120V	⚠
RL1501	TSEH0013	RELAY	⚠
RL1501	TSEH1860-1	RELAY	⚠
RL1501	TSEH8007	RELAY,120V	⚠

TRANSFORMER

Ref. No.	Part No.	Part Name & Description	Remarks
T1001	ETS28AD1F5AC	TRANSFORMER	⚠
T1001	ETS28AD1F5NC	TRANSFORMER	⚠
T1001	VTPS0040	TRANSFORMER	⚠
T1001	VTPS0040-1	TRANSFORMER	⚠
T1501	ETS28AD2M5AC	POWER TRANSFORMER	⚠

MISCELLANEOUS

Ref. No.	Part No.	Part Name & Description	Remarks
482	XNG3	NUT,STEEL	
483	XYN3+F10S	SCREW W/WASHER,STEEL	
771	EYF52BC	FUSE HOLDER	
772	LSSC0408	HEAT SINK	
773	VSCS1072	HEAT SINK	

12.3.8. OPERATION C.B.A.

INTEGRATED CIRCUITS

Ref. No.	Part No.	Part Name & Description	Remarks
IC4701	UPC4570G	IC, LINEAR	

TRANSISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
Q4710	2SD0601A0L	TRANSISTOR SI NPN CHIP	
Q4710	B1ABCF000011	TRANSISTOR SI NPN CHIP	
Q4711	2SD0601A0L	TRANSISTOR SI NPN CHIP	
Q4711	B1ABCF000011	TRANSISTOR SI NPN CHIP	
Q4712	2SD0601A0L	TRANSISTOR SI NPN CHIP	
Q4712	B1ABCF000011	TRANSISTOR SI NPN CHIP	
Q4713	2SD0601A0L	TRANSISTOR SI NPN CHIP	
Q4713	B1ABCF000011	TRANSISTOR SI NPN CHIP	

DIODES

Ref. No.	Part No.	Part Name & Description	Remarks
D4591	RD9.1EW	DIODE ZENER 9.1V	
D4592	RD9.1EW	DIODE ZENER 9.1V	

RESISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
R4591	ERDS2TJ681	CARBON 1/4W 680	
R4592	ERDS2TJ681	CARBON 1/4W 680	
R4593	ERDS2TJ681	CARBON 1/4W 680	
R4594	ERDS2TJ681	CARBON 1/4W 680	
R4701	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R4702	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R4703	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R4704	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R4710	ERJ6GEYJ750V	MGF CHIP 1/10W 75	
R4711	ERJ6GEYJ750V	MGF CHIP 1/10W 75	
R4712	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R4713	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R4714	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R4715	ERJ6GEYJ271V	MGF CHIP 1/10W 270	
R4716	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R4717	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R4718	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R4719	ERJ6GEYJ271V	MGF CHIP 1/10W 270	
R4720	ERJ6GEYJ822V	MGF CHIP 1/10W 8.2K	
R4721	ERJ6GEYJ392V	MGF CHIP 1/10W 3.9K	
R4722	ERJ6GEYJ331V	MGF CHIP 1/10W 330	
R4723	ERJ6GEYJ471V	MGF CHIP 1/10W 470	
R4724	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R4725	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R4726	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R6382	ERJ6GEYJ182V	MGF CHIP 1/10W 1.8K	

Ref. No.	Part No.	Part Name & Description	Remarks
R6383	ERJ6GEYJ392V	MGF CHIP 1/10W 3.9K	
R6384	ERJ6GEYJ123V	MGF CHIP 1/10W 12K	

CAPACITORS

Ref. No.	Part No.	Part Name & Description	Remarks
C4701	ECJ2VC1H101J	C CHIP 50V 100PF	
C4702	ECJ2VC1H101J	C CHIP 50V 100PF	
C4703	ECJ2VF1H103Z	C CHIP 50V 0.01UF	
C4704	ECJ2VF1H103Z	C CHIP 50V 0.01UF	
C4705	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C4706	ECEA1CKA100	ELECTROLYTIC 16V 10UF	
C4710	ECEA1CKA220	ELECTROLYTIC 16V 22UF	
C4711	ECJ2VF1H103Z	C CHIP 50V 0.01UF	
C4712	ECEA0JKA221	ELECTROLYTIC 6.3V 220UF	
C4713	ECJ2VF1H103Z	C CHIP 50V 0.01UF	
C4714	ECJ2VF1H103Z	C CHIP 50V 0.01UF	
C4715	ECEA1CKA220	ELECTROLYTIC 16V 22UF	
C4716	ECEA1CKA101I	ELECTROLYTIC 16V 100UF	

COILS

Ref. No.	Part No.	Part Name & Description	Remarks
L4701	ELESN101KA	COIL 100UH	
L4710	ELESN101KA	COIL 100UH	

PIN HEADERS

Ref. No.	Part No.	Part Name & Description	Remarks
P4591	K1KA05A00177	CONNECTOR 5P	
P4701	VJPS0772	CONNECTOR PLUG 19P	

SWITCHES

Ref. No.	Part No.	Part Name & Description	Remarks
SW6383	EVQ21405R	PUSH SWITCH	
SW6384	EVQ21405R	PUSH SWITCH	
SW6385	EVQ21405R	PUSH SWITCH	
SW6386	EVQ21405R	PUSH SWITCH	

JACKS

Ref. No.	Part No.	Part Name & Description	Remarks
JK4591	K2HC103B0047	EARPHONE JACK SOCKET	
JK4701	K1CB104B0040	S-VIDEO JACK SOCKET	
JK4702	LSJJ0168	FRONT AUDIO/VIDEO JACK SOCKET	

12.3.9. DVD DECODER C.B.A.

INTEGRATED CIRCUITS

Ref. No.	Part No.	Part Name & Description	Remarks
IC8000	ES4318F	IC, 32BIT MICROCONTROLLER	E.S.D.
IC8001	AT24C04N10SI	IC, 4K EEP ROM	E.S.D.
IC8001	C3EBEC000031	IC, 4K EEP ROM	E.S.D.
IC8001	S-24C04A	IC, 4K EEP ROM	E.S.D.
IC8002	C0JBAF000480	IC, CMOS STANDARD LOGIC	E.S.D.
IC8002	SN74AHCT374N	IC, CMOS STANDARD LOGIC	E.S.D.
IC8003	C0DBZGG00002	IC, LINEAR	
IC8100	C3ABPG000078	IC, 64MBIT SD RAM	E.S.D.
IC8100	C3ABPG000067	IC, 64MBIT SD RAM	E.S.D.
IC8200	ADV7170KSU	IC, LINEAR	
IC8201	C0CBABD00016	IC, LINEAR	
IC8301	C3FBLD000084	IC, 8MBIT FLASH MEMORY	E.S.D.
IC8301	C3FBLG000012	IC, 8MBIT FLASH MEMORY	E.S.D.
IC8401	AN6552S-E1	IC, LINEAR	
IC8403	PCM1723E-2K	IC, LINEAR	
IC8502	C0JBAB000196	IC, CMOS STANDARD LOGIC	E.S.D.

TRANSISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
Q8000	2SB09560RL	TRANSISTOR SI PNP CHIP	
Q8200	2SB1218ARL	TRANSISTOR SI PNP CHIP	
Q8201	2SB1218ARL	TRANSISTOR SI PNP CHIP	
Q8202	2SB1218ARL	TRANSISTOR SI PNP CHIP	
Q8204	2SB1218ARL	TRANSISTOR SI PNP CHIP	
Q8205	2SB1218ARL	TRANSISTOR SI PNP CHIP	
Q8206	2SB1218ARL	TRANSISTOR SI PNP CHIP	

DIODES

Ref. No.	Part No.	Part Name & Description	Remarks
D8000	MAZ30510ML	DIODE ZENER 5.1V	
D8001	MAZ30510ML	DIODE ZENER 5.1V	
D8002	MAZ30510ML	DIODE ZENER 5.1V	
D8003	MAZ30510ML	DIODE ZENER 5.1V	

RESISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
R8004	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
R8010	ERJ3GEYJ472V	MGF CHIP 1/16W 4.7K	
R8011	ERJ3GEYJ472V	MGF CHIP 1/16W 4.7K	
R8012	ERJ3GEYJ472V	MGF CHIP 1/16W 4.7K	
R8013	ERJ3GEYJ472V	MGF CHIP 1/16W 4.7K	
R8014	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
R8015	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
R8016	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
R8017	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
R8018	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
R8019	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
R8020	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
R8021	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
R8022	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
R8023	ERJ3GEYJ470V	MGF CHIP 1/16W 47	
R8024	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
R8025	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
R8026	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
R8027	ERJ3GEYJ330V	MGF CHIP 1/16W 33	
R8028	ERJ3GEYJ330V	MGF CHIP 1/16W 33	
R8029	ERJ3GEYJ330V	MGF CHIP 1/16W 33	
R8030	ERJ3GEYJ330V	MGF CHIP 1/16W 33	
R8031	ERJ3GEYJ330V	MGF CHIP 1/16W 33	
R8032	ERJ3GEYJ330V	MGF CHIP 1/16W 33	
R8033	ERJ3GEYJ330V	MGF CHIP 1/16W 33	
R8034	ERJ3GEYJ330V	MGF CHIP 1/16W 33	
R8035	ERJ3GEYJ330V	MGF CHIP 1/16W 33	
R8036	ERJ3GEYJ330V	MGF CHIP 1/16W 33	
R8037	ERJ3GEYJ330V	MGF CHIP 1/16W 33	
R8038	ERJ3GEYJ330V	MGF CHIP 1/16W 33	
R8039	ERJ3GEYJ330V	MGF CHIP 1/16W 33	
R8040	ERJ3GEYJ330V	MGF CHIP 1/16W 33	
R8041	ERJ3GEYJ330V	MGF CHIP 1/16W 33	
R8042	ERJ3GEYJ330V	MGF CHIP 1/16W 33	
R8043	ERJ3GEYJ330V	MGF CHIP 1/16W 33	
R8045	ERJ3GEYJ330V	MGF CHIP 1/16W 33	
R8047	ERJ3GEYJ330V	MGF CHIP 1/16W 33	
R8048	ERJ3GEYJ470V	MGF CHIP 1/16W 47	
R8049	ERJ1WYJ1R0U	MGF CHIP1W 1	
R8050	ERJ3GEYJ820V	MGF CHIP1/16W 82	
R8051	ERJ3GEYJ820V	MGF CHIP1/16W 82	
R8052	ERJ3GEYJ820V	MGF CHIP1/16W 82	
R8053	ERJ3GEYJ820V	MGF CHIP1/16W 82	
R8054	ERJ3GEYJ820V	MGF CHIP1/16W 82	
R8055	ERJ3GEYJ820V	MGF CHIP1/16W 82	
R8056	ERJ3GEYJ820V	MGF CHIP1/16W 82	
R8057	ERJ3GEYJ820V	MGF CHIP1/16W 82	
R8058	ERJ3GEYJ470V	MGF CHIP 1/16W 47	
R8059	ERJ3GEYJ470V	MGF CHIP 1/16W 47	
R8060	ERJ3GEYJ470V	MGF CHIP 1/16W 47	
R8061	ERJ3GEYJ103V	MGF CHIP 1/16W 10K	
R8062	ERJ3GEYJ470V	MGF CHIP 1/16W 47	
R8063	ERJ3GEYJ470V	MGF CHIP 1/16W 47	
R8064	ERJ3GEYJ472V	MGF CHIP 1/16W 4.7K	

Ref. No.	Part No.	Part Name & Description	Remarks
R8065	ERJ3GEYJ472V	MGF CHIP 1/16W 4.7K	
R8066	ERJ3GEYJ103V	MGF CHIP 1/16W 10K	
R8067	ERJ3GEYJ470V	MGF CHIP 1/16W 47	
R8068	ERJ3GEYJ330V	MGF CHIP 1/16W 33	
R8069	ERJ3GEYJ330V	MGF CHIP 1/16W 33	
R8074	ERJ3GEYJ470V	MGF CHIP 1/16W 47	
R8076	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
R8077	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
R8082	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8083	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8084	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8085	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8086	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8087	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8088	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8089	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8090	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8091	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8092	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8093	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8094	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8095	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8096	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8097	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8098	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8099	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8101	ERJ3GEYJ100V	MGF CHIP 1/16W 10	
R8102	ERJ3GEYJ100V	MGF CHIP 1/16W 10	
R8103	ERJ3GEYJ100V	MGF CHIP 1/16W 10	
R8104	ERJ3GEYJ100V	MGF CHIP 1/16W 10	
R8105	ERJ3GEYJ100V	MGF CHIP 1/16W 10	
R8106	ERJ3GEYJ100V	MGF CHIP 1/16W 10	
R8107	ERJ3GEYJ100V	MGF CHIP 1/16W 10	
R8108	ERJ3GEYJ100V	MGF CHIP 1/16W 10	
R8109	ERJ3GEYJ100V	MGF CHIP 1/16W 10	
R8110	ERJ3GEYJ100V	MGF CHIP 1/16W 10	
R8111	ERJ3GEYJ100V	MGF CHIP 1/16W 10	
R8113	ERJ3GEYJ330V	MGF CHIP 1/16W 33	
R8115	ERJ3GEYJ330V	MGF CHIP 1/16W 33	
R8116	ERJ3GEYJ330V	MGF CHIP 1/16W 33	
R8117	ERJ3GEYJ330V	MGF CHIP 1/16W 33	
R8118	ERJ3GEYJ330V	MGF CHIP 1/16W 33	
R8119	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
R8120	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
R8123	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
R8124	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
R8125	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
R8137	ERJ3GEYJ100V	MGF CHIP 1/16W 10	
R8143	ERJ3GEYJ100V	MGF CHIP 1/16W 10	
R8144	ERJ3GEYJ100V	MGF CHIP 1/16W 10	
R8145	ERJ3GEYJ100V	MGF CHIP 1/16W 10	
R8146	ERJ3GEYJ100V	MGF CHIP 1/16W 10	
R8147	ERJ3GEYJ100V	MGF CHIP 1/16W 10	
R8148	ERJ3GEYJ100V	MGF CHIP 1/16W 10	

Ref. No.	Part No.	Part Name & Description	Remarks
R8149	ERJ3GEYJ100V	MGF CHIP 1/16W 10	
R8150	ERJ3GEYJ100V	MGF CHIP 1/16W 10	
R8151	ERJ3GEYJ100V	MGF CHIP 1/16W 10	
R8152	ERJ3GEYJ100V	MGF CHIP 1/16W 10	
R8153	ERJ3GEYJ100V	MGF CHIP 1/16W 10	
R8154	ERJ3GEYJ100V	MGF CHIP 1/16W 10	
R8155	ERJ3GEYJ100V	MGF CHIP 1/16W 10	
R8156	ERJ3GEYJ100V	MGF CHIP 1/16W 10	
R8157	ERJ3GEYJ100V	MGF CHIP 1/16W 10	
R8158	ERJ3GEYJ100V	MGF CHIP 1/16W 10	
R8203	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
R8204	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
R8205	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
R8206	ERJ3GEYJ104V	MGF CHIP 1/16W 100K	
R8207	ERJ3GEYJ104V	MGF CHIP 1/16W 100K	
R8208	ERJ3GEYJ152V	MGF CHIP 1/16W 1.5K	
R8215	ERJ3GEYJ101V	MGF CHIP 1/16W 100	
R8216	ERJ3GEYJ101V	MGF CHIP 1/16W 100	
R8217	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
R8218	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
R8220	ERJ3GEYJ151V	MGF CHIP 1/16W 150	
R8221	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
R8222	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
R8223	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
R8224	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
R8225	ERJ3GEYJ473V	MGF CHIP 1/16W 47K	
R8230	ERJ3GEYJ302V	MGF CHIP 1/16W 3K	
R8231	ERJ3GEYJ151V	MGF CHIP 1/16W 150	
R8232	ERJ3GEYJ302V	MGF CHIP 1/16W 3K	
R8233	ERJ3GEYJ151V	MGF CHIP 1/16W 150	
R8234	ERJ3GEYJ302V	MGF CHIP 1/16W 3K	
R8238	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
R8239	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
R8240	ERJ3GEYJ102V	MGF CHIP 1/16W 1K	
R8241	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
R8292	ERJ8GEYJ1R0V	MGF CHIP 1/8W 1	
R8293	ERJ3GEYJ330V	MGF CHIP 1/16W 33	
R8294	ERJ3GEYJ330V	MGF CHIP 1/16W 33	
R8299	EVM3YSX50B23	VARIABLE 2K	
R8300	ERJ3GEYJ330V	MGF CHIP 1/16W 33	
R8301	ERJ3GEYJ330V	MGF CHIP 1/16W 33	
R8302	ERJ3GEYJ330V	MGF CHIP 1/16W 33	
R8304	ERJ3GEY0R00V	MGF CHIP 1/16W 0	
R8309	ERJ3GEYJ330V	MGF CHIP 1/16W 33	
R8310	ERJ3GEYJ330V	MGF CHIP 1/16W 33	
R8311	ERJ3GEYJ330V	MGF CHIP 1/16W 33	
R8312	ERJ3GEYJ330V	MGF CHIP 1/16W 33	
R8313	ERJ3GEYJ330V	MGF CHIP 1/16W 33	
R8314	ERJ3GEYJ330V	MGF CHIP 1/16W 33	
R8315	ERJ3GEYJ330V	MGF CHIP 1/16W 33	
R8316	ERJ3GEYJ330V	MGF CHIP 1/16W 33	
R8317	ERJ3GEYJ330V	MGF CHIP 1/16W 33	
R8318	ERJ3GEYJ330V	MGF CHIP 1/16W 33	
R8319	ERJ3GEYJ330V	MGF CHIP 1/16W 33	

Ref. No.	Part No.	Part Name & Description	Remarks
R8320	ERJ3GEYJ330V	MGF CHIP 1/16W 33	
R8321	ERJ3GEYJ330V	MGF CHIP 1/16W 33	
R8322	ERJ3GEYJ330V	MGF CHIP 1/16W 33	
R8323	ERJ3GEYJ330V	MGF CHIP 1/16W 33	
R8324	ERJ3GEYJ330V	MGF CHIP 1/16W 33	
R8326	ERJ3GEYJ330V	MGF CHIP 1/16W 33	
R8327	ERJ3GEYJ330V	MGF CHIP 1/16W 33	
R8328	ERJ3GEYJ330V	MGF CHIP 1/16W 33	
R8329	ERJ3GEYJ330V	MGF CHIP 1/16W 33	
R8330	ERJ3GEYJ330V	MGF CHIP 1/16W 33	
R8331	ERJ3GEYJ330V	MGF CHIP 1/16W 33	
R8332	ERJ3GEYJ330V	MGF CHIP 1/16W 33	
R8333	ERJ3GEYJ330V	MGF CHIP 1/16W 33	
R8334	ERJ3GEYJ330V	MGF CHIP 1/16W 33	
R8335	ERJ3GEYJ330V	MGF CHIP 1/16W 33	
R8336	ERJ3GEYJ330V	MGF CHIP 1/16W 33	
R8337	ERJ3GEYJ330V	MGF CHIP 1/16W 33	
R8338	ERJ3GEYJ621V	MGF CHIP 1/16W 620	
R8339	ERJ3GEYJ333V	MGF CHIP 1/16W 33K	
R8340	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8341	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8342	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8343	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8344	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8345	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8346	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8347	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8348	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8349	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8350	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8351	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8352	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8353	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8354	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8355	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8356	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8357	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8358	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8359	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8360	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8361	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8362	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8363	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8364	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8365	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8366	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8367	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8368	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8369	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8370	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8371	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8372	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8373	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8374	ERJ3GEYJ220V	MGF CHIP 1/16W 22	

Ref. No.	Part No.	Part Name & Description	Remarks
R8375	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8376	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8377	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8378	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8379	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8380	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8381	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8382	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8383	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8384	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8385	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8386	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8387	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8388	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8389	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8390	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8391	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8392	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8393	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8394	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8395	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8396	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8397	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8398	ERJ3GEYJ220V	MGF CHIP 1/16W 22	
R8403	ERJ3GEYJ223V	MGF CHIP 1/16W 22K	
R8404	ERJ3GEYJ223V	MGF CHIP 1/16W 22K	
R8405	ERJ3GEYJ223V	MGF CHIP 1/16W 22K	
R8406	ERJ3GEYJ223V	MGF CHIP 1/16W 22K	
R8407	ERJ3GEYJ822V	MGF CHIP 1/16W 8.2K	
R8408	ERJ3GEYJ822V	MGF CHIP 1/16W 8.2K	
R8409	ERJ3GEYJ622V	MGF CHIP 1/16W 6.2K	
R8410	ERJ3GEYJ622V	MGF CHIP 1/16W 6.2K	
R8411	ERJ3EKF1502V	MGF CHIP 1/16W 15K	
R8412	ERJ3EKF1502V	MGF CHIP 1/16W 15K	
R8413	ERJ3GEYJ471V	MGF CHIP 1/16W 470	
R8414	ERJ3GEYJ471V	MGF CHIP 1/16W 470	
R8427	ERJ3GEYJ330V	MGF CHIP 1/16W 33	
R8429	ERJ3GEYJ101V	MGF CHIP 1/16W 100	
R8430	ERJ3GEYJ101V	MGF CHIP 1/16W 100	
R8431	ERJ3GEYJ473V	MGF CHIP 1/16W 47K	
R8432	ERJ3GEYJ473V	MGF CHIP 1/16W 47K	
R8433	ERJ3GEYJ330V	MGF CHIP 1/16W 33	
R8434	ERJ3GEYJ330V	MGF CHIP 1/16W 33	
R8435	ERJ3GEYJ330V	MGF CHIP 1/16W 33	
R8447	ERJ3GEYJ330V	MGF CHIP 1/16W 33	
R8500	ERJ3GEYJ473V	MGF CHIP 1/16W 47K	
R8501	ERJ3GEYJ331V	MGF CHIP 1/16W 330	
R8502	ERJ3GEYJ331V	MGF CHIP 1/16W 330	
R8503	ERJ3GEYJ331V	MGF CHIP 1/16W 330	
R8504	ERJ3GEYJ331V	MGF CHIP 1/16W 330	
R8505	ERJ3GEYJ151V	MGF CHIP 1/16W 150	
R8506	ERJ3GEYJ473V	MGF CHIP 1/16W 47K	
R8507	ERJ3GEYJ473V	MGF CHIP 1/16W 47K	
R8508	ERJ3GEYJ473V	MGF CHIP 1/16W 47K	

Ref. No.	Part No.	Part Name & Description	Remarks
R8509	ERJ3GEYJ473V	MGF CHIP 1/16W 47K	
R8510	ERJ3GEYJ103V	MGF CHIP 1/16W 10K	
R8511	ERJ3GEYJ103V	MGF CHIP 1/16W 10K	
R8512	ERJ3GEYJ103V	MGF CHIP 1/16W 10K	
R8513	ERJ3GEYJ103V	MGF CHIP 1/16W 10K	
R8514	ERJ3GEYJ103V	MGF CHIP 1/16W 10K	

CAPACITORS

Ref. No.	Part No.	Part Name & Description	Remarks
C8000	ECJ1VF1C104Z	C CHIP 16V 0.1UF	
C8001	ECJ1VF1C104Z	C CHIP 16V 0.1UF	
C8002	ECJ1VF1C104Z	C CHIP 16V 0.1UF	
C8003	ECJ1VF1C104Z	C CHIP 16V 0.1UF	
C8004	ECJ1VF1C104Z	C CHIP 16V 0.1UF	
C8005	ECJ1VF1C104Z	C CHIP 16V 0.1UF	
C8006	ECJ1VF1C104Z	C CHIP 16V 0.1UF	
C8007	ECJ1VF1C104Z	C CHIP 16V 0.1UF	
C8008	ECJ1VF1C104Z	C CHIP 16V 0.1UF	
C8009	ECJ1VF1C104Z	C CHIP 16V 0.1UF	
C8010	ECJ1VF1C104Z	C CHIP 16V 0.1UF	
C8011	ECJ1VF1C104Z	C CHIP 16V 0.1UF	
C8012	ECJ1VF1C104Z	C CHIP 16V 0.1UF	
C8013	ECJ1VF1C104Z	C CHIP 16V 0.1UF	
C8014	ECJ1VF1C104Z	C CHIP 16V 0.1UF	
C8015	ECJ1VF1C104Z	C CHIP 16V 0.1UF	
C8016	ECJ1VF1C104Z	C CHIP 16V 0.1UF	
C8017	ECJ1VF1C104Z	C CHIP 16V 0.1UF	
C8018	ECJ1VF1C104Z	C CHIP 16V 0.1UF	
C8019	ECJ1VF1C104Z	C CHIP 16V 0.1UF	
C8020	ECJ1VF1C104Z	C CHIP 16V 0.1UF	
C8021	ECJ1VF1C104Z	C CHIP 16V 0.1UF	
C8022	ECJ1VF1C104Z	C CHIP 16V 0.1UF	
C8023	ECJ1VF1C104Z	C CHIP 16V 0.1UF	
C8025	ECJ2VC1H151J	C CHIP 50V 150PF	
C8026	ECEV1CS100S	ELECTROLYTIC CHIP 16V 10UF	
C8027	ECEV0JA101S	ELECTROLYTIC CHIP 6.3V 100UF	
C8030	ECJ1VF1C104Z	C CHIP 16V 0.1UF	
C8031	ECJ1VF1C104Z	C CHIP 16V 0.1UF	
C8034	ECEV0JA331	ELECTROLYTIC CHIP 6.3V 330UF	
C8041	ECJ1VF1C104Z	C CHIP 16V 0.1UF	
C8042	ECEV1AA470WR	ELECTROLYTIC CHIP 10V 47UF	
C8043	ECEV1AA101SP	ELECTROLYTIC CHIP 10V 100UF	
C8044	ECEV1AA101SP	ELECTROLYTIC CHIP 10V 100UF	
C8045	ECJ1VF1C104Z	C CHIP 16V 0.1UF	
C8047	ECJ1VF1C104Z	C CHIP 16V 0.1UF	
C8048	ECEV1CS100S	ELECTROLYTIC CHIP 16V 10UF	
C8049	ECEV1AA470WR	ELECTROLYTIC CHIP 10V 47UF	
C8050	ECEV0JA101S	ELECTROLYTIC CHIP 6.3V 100UF	
C8054	ECEV1AA101SP	ELECTROLYTIC CHIP 10V 100UF	
C8056	ECEV0JA470S	ELECTROLYTIC CHIP 6.3V 47UF	
C8058	ECJ1VF1C104Z	C CHIP 16V 0.1UF	
C8102	ECUE1C104ZFV	C CHIP 16V 0.1UF	
C8106	ECJ1VF1C104Z	C CHIP 16V 0.1UF	

Ref. No.	Part No.	Part Name & Description	Remarks
C8107	ECJ1VF1C104Z	C CHIP 16V 0.1UF	
C8109	ECJ1VF1C104Z	C CHIP 16V 0.1UF	
C8110	ECJ1VF1C104Z	C CHIP 16V 0.1UF	
C8111	ECJ1VF1C104Z	C CHIP 16V 0.1UF	
C8112	ECJ1VF1C104Z	C CHIP 16V 0.1UF	
C8201	ECJ1VF1C104Z	C CHIP 16V 0.1UF	
C8202	ECJ1VF1C104Z	C CHIP 16V 0.1UF	
C8203	ECJ1VF1C104Z	C CHIP 16V 0.1UF	
C8206	ECJ1VF1C104Z	C CHIP 16V 0.1UF	
C8207	ECJ1VF1C104Z	C CHIP 16V 0.1UF	
C8208	ECJ1VF1C104Z	C CHIP 16V 0.1UF	
C8209	ECEV1CS100S	ELECTROLYTIC CHIP 16V 10UF	
C8210	ECJ1VF1C104Z	C CHIP 16V 0.1UF	
C8211	ECEV0JA101S	ELECTROLYTIC CHIP 6.3V 100UF	
C8215	ECEV0JA470S	ELECTROLYTIC CHIP 6.3V 47UF	
C8219	ECJ1VF1C104Z	C CHIP 16V 0.1UF	
C8220	ECJ1VF1C104Z	C CHIP 16V 0.1UF	
C8221	ECJ1VF1C104Z	C CHIP 16V 0.1UF	
C8222	ECJ1VF1C104Z	C CHIP 16V 0.1UF	
C8223	ECJ1VF1C104Z	C CHIP 16V 0.1UF	
C8224	ECJ1VF1C104Z	C CHIP 16V 0.1UF	
C8225	ECEV1CS100S	ELECTROLYTIC CHIP 16V 10UF	
C8226	ECJ1VF1C104Z	C CHIP 16V 0.1UF	
C8227	ECEV1AA470WR	ELECTROLYTIC CHIP 10V 47UF	
C8228	ECJ1VC1H390J	C CHIP 50V 39PF	
C8229	ECJ1VC1H390J	C CHIP 50V 39PF	
C8230	ECJ1VC1H220J	C CHIP 50V 22PF	
C8231	ECJ1VC1H390J	C CHIP 50V 39PF	
C8232	ECJ1VC1H390J	C CHIP 50V 39PF	
C8233	ECJ1VC1H220J	C CHIP 50V 22PF	
C8234	ECJ1VC1H390J	C CHIP 50V 39PF	
C8235	ECJ1VC1H390J	C CHIP 50V 39PF	
C8236	ECJ1VC1H220J	C CHIP 50V 22PF	
C8238	ECJ1VC1H220J	C CHIP 50V 22PF	
C8239	ECJ1VC1H220J	C CHIP 50V 22PF	
C8240	ECJ1VC1H220J	C CHIP 50V 22PF	
C8241	ECEV0JA470S	ELECTROLYTIC CHIP 6.3V 47UF	
C8243	ECUE1H103ZFV	C CHIP 50V 0.01UF	
C8244	ECUE1H103ZFV	C CHIP 50V 0.01UF	
C8245	ECUE1H103ZFV	C CHIP 50V 0.01UF	
C8246	ECUE1H103ZFV	C CHIP 50V 0.01UF	
C8247	ECUE1H103ZFV	C CHIP 50V 0.01UF	
C8248	ECUE1H103ZFV	C CHIP 50V 0.01UF	
C8249	ECUE1H103ZFV	C CHIP 50V 0.01UF	
C8250	ECUE1H103ZFV	C CHIP 50V 0.01UF	
C8251	ECUE1H103ZFV	C CHIP 50V 0.01UF	
C8252	ECUE1H103ZFV	C CHIP 50V 0.01UF	
C8253	ECUE1H103ZFV	C CHIP 50V 0.01UF	
C8301	ECJ1VF1C104Z	C CHIP 16V 0.1UF	
C8302	ECJ1VF1A105Z	C CHIP 10V 1UF	
C8303	ECJ1VF1C104Z	C CHIP 16V 0.1UF	
C8403	ECEV1CS100S	ELECTROLYTIC CHIP 16V 10UF	
C8404	ECEV1CA101	ELECTROLYTIC CHIP 16V 100UF	
C8405	ECEV1CS100S	ELECTROLYTIC CHIP 16V 10UF	

Ref. No.	Part No.	Part Name & Description	Remarks
C8406	ECJ1VF1C104Z	C CHIP 16V 0.1UF	
C8407	ECEV1EA330SP	ELECTROLYTIC CHIP 25V 33UF	
C8408	ECEV1EA330SP	ELECTROLYTIC CHIP 25V 33UF	
C8409	ECJ1VC1H101J	C CHIP 50V 100PF	
C8410	ECJ1VC1H101J	C CHIP 50V 100PF	
C8411	ECJ1VB1H102K	C CHIP 50V 1000PF	
C8412	ECJ1VB1H102K	C CHIP 50V 1000PF	
C8414	ECJ1VB1H472K	C CHIP 50V 4700PF	
C8416	ECJ1VB1H472K	C CHIP 50V 4700PF	
C8421	ECJ1VC1H330J	C CHIP 50V 33PF	
C8425	ECEV1CA100S	ELECTROLYTIC CHIP 16V 10UF	
C8426	ECEV1CA100S	ELECTROLYTIC CHIP 16V 10UF	
C8429	ECEV1CS100S	ELECTROLYTIC CHIP 16V 10UF	
C8430	ECEV1CS100S	ELECTROLYTIC CHIP 16V 10UF	
C8431	ECEV1CS100S	ELECTROLYTIC CHIP 16V 10UF	
C8432	ECEV1CS100S	ELECTROLYTIC CHIP 16V 10UF	
C8438	ECJ1VF1C104Z	C CHIP 16V 0.1UF	
C8439	ECJ1VF1C104Z	C CHIP 16V 0.1UF	
C8440	ECJ1VF1C104Z	C CHIP 16V 0.1UF	
C8442	ECEV1AA470WR	ELECTROLYTIC CHIP 10V 47UF	
C8443	ECJ1VF1C104Z	C CHIP 16V 0.1UF	
C8507	ECJ1VC1H330J	C CHIP 50V 33PF	
C8508	ECJ1VC1H330J	C CHIP 50V 33PF	
C8509	ECJ1VC1H330J	C CHIP 50V 33PF	
C8510	ECJ1VC1H330J	C CHIP 50V 33PF	
C8511	ECJ1VC1H330J	C CHIP 50V 33PF	
C8513	ECJ1VF1C104Z	C CHIP 16V 0.1UF	
C8514	ECJ1VF1C104Z	C CHIP 16V 0.1UF	

FILTERS

Ref. No.	Part No.	Part Name & Description	Remarks
FL8000	LSLF0014	EMI FILTER CHIP	
FL8001	LSLF0014	EMI FILTER CHIP	
FL8002	LSLF0014	EMI FILTER CHIP	
FL8003	LSLF0014	EMI FILTER CHIP	
FL8200	LSLF0014	EMI FILTER CHIP	

COILS

Ref. No.	Part No.	Part Name & Description	Remarks
L8000	J0JHC0000027	EMI FILTER CHIP	
L8002	J0JBC0000010	EMI FILTER CHIP	
L8003	J0JBC0000010	EMI FILTER CHIP	
L8004	J0JBC0000010	EMI FILTER CHIP	
L8005	J0JBC0000010	EMI FILTER CHIP	
L8006	J0JBC0000010	EMI FILTER CHIP	
L8007	J0JBC0000010	EMI FILTER CHIP	
L8009	LSLF0008	LOW PASS FILTER	
L8010	LSLF0008	LOW PASS FILTER	
L8011	J0JGC0000017	EMI FILTER CHIP	
L8012	J0JGC0000017	EMI FILTER CHIP	
L8013	J0JGC0000017	EMI FILTER CHIP	
L8017	LSLF0006	LOW PASS FILTER	
L8018	J0JBC0000010	EMI FILTER CHIP	
L8020	J0JBC0000010	EMI FILTER CHIP	
L8021	J0JCC0000117	EMI FILTER CHIP	
L8022	J0JHC0000027	EMI FILTER CHIP	
L8023	LSLF0015	EMI FILTER CHIP	
L8102	LSLF0015	EMI FILTER CHIP	
L8200	LSLF0015	EMI FILTER CHIP	
L8204	J0JBC0000010	EMI FILTER CHIP	
L8205	J0JBC0000010	EMI FILTER CHIP	
L8206	J0JBC0000010	EMI FILTER CHIP	
L8207	J0JHC0000027	EMI FILTER CHIP	
L8210	LSLF0006	LOW PASS FILTER	
L8212	G1C270MA0021	INDUCTOR CHIP	
L8213	G1C330MA0021	INDUCTOR CHIP	
L8214	G1C270MA0021	INDUCTOR CHIP	
L8215	G1C270MA0021	INDUCTOR CHIP	
L8216	G1C330MA0021	INDUCTOR CHIP	
L8217	G1C270MA0021	INDUCTOR CHIP	
L8218	G1C270MA0021	INDUCTOR CHIP	
L8219	G1C330MA0021	INDUCTOR CHIP	
L8220	G1C270MA0021	INDUCTOR CHIP	
L8222	LSLF0015	EMI FILTER CHIP	
L8223	LSLF0015	EMI FILTER CHIP	
L8301	LSLF0006	LOW PASS FILTER	
L8400	J0JBC0000010	EMI FILTER CHIP	
L8401	J0JBC0000010	EMI FILTER CHIP	
L8402	LSLF0032	EMI FILTER CHIP	
L8410	J0JBC0000010	EMI FILTER CHIP	
L8411	J0JBC0000010	EMI FILTER CHIP	
L8416	LSLF0006	LOW PASS FILTER	
L8501	LSLF0006	LOW PASS FILTER	
L8506	G1C1R0K00005	INDUCTOR CHIP	
L8507	G1C1R0K00005	INDUCTOR CHIP	
L8508	G1C1R0K00005	INDUCTOR CHIP	
L8511	LSLF0015	EMI FILTER CHIP	
L8512	G1C1R0K00005	INDUCTOR CHIP	
L8513	G1C1R0K00005	INDUCTOR CHIP	

CRYSTAL OSCILLATOR

Ref. No.	Part No.	Part Name & Description	Remarks
X8501	VSXS0240	CRYSTAL OSCILLATOR	

PIN HEADERS

Ref. No.	Part No.	Part Name & Description	Remarks
P8001	VJPS0770	CONNECTOR 11P	
P8002	VJPS0771	CONNECTOR PLUG 13P	
P8003	VJPS0771	CONNECTOR PLUG 13P	
P8004	LSJS0040	CONNECTOR 40P	

MISCELLANEOUS

Ref. No.	Part No.	Part Name & Description	Remarks
737	VEKS5836	CONNECTOR CABLE W/PLUG,0V	
791	VEKS5773	CONNECTOR CABLE W/PLUG,DC 5V	

13. SCHEMATIC DIAGRAMS FOR PRINTING WITH LETTER SIZE